

THE
EDINBURGH PRACTICE
OF
PHYSIC, SURGERY,
AND
MIDWIFERY;

PRECEDED BY
AN ABSTRACT OF THE THEORY OF MEDICINE,
AND

THE NOSOLOGY OF DR. CULLEN :
AND INCLUDING
UPWARDS OF SIX HUNDRED AUTHENTIC FORMULÆ,
FROM THE BOOKS OF ST. BARTHOLOMEW'S, ST. GEORGE'S,
ST. THOMAS'S, GUY'S, AND OTHER HOSPITALS IN
LONDON, AND FROM THE LECTURES AND
WRITINGS OF THE MOST EMINENT
PUBLIC TEACHERS.

With Twenty Quarto Plates.

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MIDWIFERY.

INTRODUCTION.

MIDWIFERY, as a science, is not confined to the mode of assisting women in the birth of children, but also comprehends the management of women both before and after delivery, as well as the treatment of the diseases of children.

Midwifery is certainly almost coëval with mankind. The first *midwife* of whom mention is made under that name, assisted at the second labour of Rachael, the wife of Jacob. Another midwife is spoken of in Genesis, at the lying-in of Thamar, who was delivered of twins. But the most honourable mention of midwives is that in Exodus, when Pharaoh, king of Egypt, who had a mind to destroy the Hebrews, commanded the midwives to kill all the male children of the Hebrew women; which command they disobeyed, and thereby obtained a recompence from God.

From all the passages in Scripture where midwives are mentioned, it is plain, that women were the only practitioners of this art among the Hebrews. Among the Greeks also women assisted at labours. Phanarete, the mother of Socrates, was a midwife. Plato speaks at large of midwives, explains their functions, regulates their duties, and remarks that they had at Athens the right of proposing or making marriages. Hippocrates makes mention of midwives, as well as Aristotle, Galen, and Aetius. This last even frequently quotes a woman called *Aspasia*, who was probably a midwife. They were called among the Greeks *Maiai* or *ιατρομαῖαι*; that is to say, *mamma*, or *grand-mamma*.

We are still better acquainted with the customs of the Romans, and know that they employed women only. This may be deduced from the comedies of Plautus and Terence alone. We there see that they are women only who are called to assist persons in labour. Besides, Pliny, in his Natural History, frequently speaks of midwives and their duties; and names two, *Sotira* and *Salpe*, who had apparently the greatest reputation. Women were also employed after the fall of the empire; and it is certain, that, till lately, all civilised nations have employed women only as midwives. This appears even from their names in many different languages, which are all feminine. There were, however, especially in great cities, surgeons who applied them-

selves to the art of midwifery, and made it their peculiar study. They were sent for in difficult cases, where the midwives found their incapacity; and then the surgeon endeavoured to deliver the woman by having recourse to instruments useful in those cases, as by crochets, crows-bills, &c.; but as these cases happened but seldom, women remained in possession of this business. It is certain, according to Astruc, that Maria Theresa, wife of Louis XIV. employed women only in her labours; and the example of the queen determined the conduct of the princesses and court-ladies, and likewise of the other ladies of the city. The same author tells us, that he has been assured, that the epoch of the employment of men-midwives goes no further back than the first lying-in of Madame de la Valiere in 1663. As she desired it might be kept a profound secret, she sent for Julian Clement a surgeon of reputation. He was conducted with the greatest secrecy into a house where the lady was, with her face covered with a hood; and where, it is said, the king was concealed in the curtains of the bed. The same surgeon was employed in the subsequent labours of the same lady; and as he was very successful with her, men-midwives afterwards came into repute; and the princesses made use of surgeons on similar occasions; and as soon as this became fashionable, the name of *accoucheur* was invented to signify this class of surgeons. Foreign countries soon adopted the custom, and likewise the name of *accoucheurs*, though they had no such term in their own language; but in Britain they have more generally been called *men-midwives*.

In opposition to this account, which is taken from Astruc, that author tells us, that he is aware of an objection from Hyginus, who asserts that the ancients had no midwives; which made the women, through modesty, rather choose to run the risk of death than to make use of men on this occasion. For the Athenians, he adds, had forbid women and slaves to study physic, that is to say, the art of midwifery. A young woman, named *Agnodice*, desirous of learning this art, cut off her hair, dressed herself in the habit of a man, and became a scholar to one Hierophilus. She afterwards followed this business. The women at first refused assistance from her, thinking she was a man; but accepted thereof when she had convinced them that she was a woman.

To this account our author replies, that the authority of Hyginus is by no means to be depended upon. His book is full of fables and barbarisms; and therefore cannot be attributed to any writer who lived before the fall of the empire; but must have been the work of an author who lived when the Latin tongue was corrupted; that is, about the seventh or eighth century. The contradictions met with in this book also give room to suspect that it is not the work of one hand, but of several. The authority of such a work, therefore, is by no means sufficient to destroy

the testimonies of those writers who affirm, that among the Greeks the care of lying-in women was committed entirely to others of their own sex.

The art of midwifery seems not to have been so soon improved as that of physic. Hippocrates, though an excellent physician, seems to have been a very bad midwife. He was acquainted with no other kind of natural labour than that in which the head presents; and condemns footling labour as fatal both to mother and child: he would have the children in such cases turned, so that the head may present. "If," says he, "the arm, or leg, or both, of a living child present, they must, as soon as discovered, be returned into the womb, and the child brought into the passage with its head downwards." For this purpose he advises to roll the woman on the bed, to shake her, and make her jump; he proposes the same expedients to procure the child's delivery; and if they do not succeed, he advises to extract it with crotchets, and, whatever happens, to dismember it.

From the time of Hippocrates to that of Celsus, who lived in the reign of the emperor Tiberius, we have no accounts of any improvements in midwifery; but this author gives two very useful directions. 1. In dilating the womb: "We must," says he, "introduce the fore-finger, well moistened with hog's lard, into the mouth of the womb when it begins to open, and in like manner afterwards a second, and so on till all the fingers are introduced, which are then to be used by separating them, as a kind of dilator, to distend the orifice, and facilitate the introduction of the hand which is to act in the womb. 2. Children may be delivered by the feet easily and safely, without crotchets, by taking hold of their legs. For this purpose we must take care to turn children, which are otherwise placed in the womb, with their head or feet downwards." It is true, Celsus speaks of a dead child only; but it was easy to conclude from thence, that the same practice might be used with success to deliver a living child. Nevertheless, this was not done; and, notwithstanding the authority of Celsus, the former prejudice continued for a long time. Though Pliny, who lived under the emperors Vespasian and Titus, was not a physician himself, yet by condemning footling labour he attests the opinion of the physicians of his time. He asserts, as a known fact, that footling labour was a preternatural kind of labour: he adds, that children which came into the world in this manner were called *Agrippa*, that is to say, born with a great deal of difficulty.

But however common this opinion was, it was never universally received; and several physicians of character rose up, who, without suffering themselves to be dazzled with the common prejudice, or seduced by the authority of Hippocrates or Galen, recommended and approved of footling delivery. The question then

was a long time undecided; and even in 1657, Riverius, a physician of reputation, condemned footling labour. Mauriceau also remarks, in the first edition of his book on the disorders of pregnant women, printed in 1664, that many authors were still of opinion, that when the child presented with its feet, it should be turned to make it come with its head foremost; but after having observed that it is difficult, if not impossible, to execute this, he concludes, "it is much better to extract the child by its feet when they present, than to run the hazard of doing worse by turning it." All practitioners, however, are now of the same opinion; and the knowledge of midwifery has been so much increased within this century, that it seems to have nearly attained its ultimate perfection, and its operations reduced almost to a geometrical certainty: and this, says Astruc, is not surprising; for, after all, the art of midwifery is reduced to the following mechanical problem, "An extensible cavity of a certain capacity being given, to pass a flexible body of a given length and thickness through an opening dilatable to a certain degree." This might be resolved geometrically, if the different degrees of elasticity of the womb, and strength and weakness of the child, the greater or lesser disposition of the blood to inflammation, and the greater or lesser degree of irritability of the nerves, did not occasion that uncertainty which physical facts constantly produce in all physico-mathematical questions.

The study of midwifery in Britain as a science is not of very ancient date. The first book published on the subject appeared in the year 1540, and was entitled *The Byrthe of Mankind*, otherwise named, *The Womans Booke*, by Thomas Raynold, physician. It underwent a second edition by Thomas Ray, a printer, whose name is not much known. It was adorned with prints, and went through several editions, and appears to have been held in high estimation. In 1653 the celebrated William Harvey published his treatise on generation; and afterwards engaging in the practice of midwifery, published his *Exercitatio de partu*. Some notice is also taken by Sydenham of the diseases incident to child-bed women, and of those of young children. About this time several other tracts on subjects relating to midwifery appeared, by Wharton, Charleton, Mayow, &c.; but till about the year 1634, Dr. Denham considers the treatise of Raynold already mentioned as being the standard. The appearance of the works of Ambrose Paré, which were now first published, depressed the reputation of Raynold's book; and Dr. Chamberlen, a celebrated physician, likewise applied himself about the same time to midwifery. He introduced an instrument into the art called a *forceps*, but which Dr. Denham supposes to have been a *vacuïs*.—He had three sons who likewise practised midwifery, and, as well as himself, obtained considerable character; and one of the young men

went over to Paris with a view to sell the secret, or advance his fortune by a practice which he had found so successful in England. In this, however, he was disappointed; the first case in which he was engaged proved unsuccessful, and he suffered much reproach in consequence. Returning to England, therefore, in 1672, he published a translation of Mauriceau's midwifery, which continued in great estimation for many years.

Dr. Willoughby, who wrote a treatise on midwifery, quoted in manuscript by Dr. Denman, complains of the practice of midwives about this time. He says, "I have read many bookes, with all the late writers in midwifery, and I do perceine that they all follow one common roade, taking their feuerall schemes and figures one from another.

"In feuerall of these schemes various things may be perceiued which will be troublefome to the labouring woman, which a iudicious practitioner will not followe. Let midwives mark what hath been written in my obseruations, let them consider diligently the feuerall reportes not fained, or the furnished thoughtes, notions, or man's fantasie, sitting and meditating in his studie, but which really haue been performed in the trauailing woman's chambre.

"From mine and their directions let midwives choose the best and facilest waies of relieuing women in affliction, and to decide all disputes, let reason be the iudge, let experience argue the dubious points of practice; and, after a full debate, let unspotted truth recorde to succeedinge times what is most fitt to be followed and used, &c."

This is a specimen of his illustration. "Let midwives obserue the waies and proceedings of nature for the production of her fruit on trees, or the ripening of walnuts and almondes, from their first knotting to the opening of the huskes and falling of the nutt; the greene huskes sticking so close that it is not possible to separate the huske from the shell, whilst it is unripe; but as the fruite ripeneth the huske choppeth and with a fissure openeth, and by degrees separateth the fruite without any enforcement.

"An egge representeth the wombe: now the henne with keeping the egge warm doth breed the chicken, which when it comes to maturitie doth chip the shell, and is by degrees hatched without injurie. These signatures may teach midwives patience, and persuade them to let nature alone to performe her owne worke, and not to disquiet women by their strugglings, for such enforcements rather hinder the birthe than any waie promote it, and oft ruinate the mother and usually the childe; and let midwives knowe that they be nature's seruantes, &c."

It seems Dr. *Willoughby's* practice was not much different from that of the present time. He divides labours into two kinds only, natural and unnatural. "The particular rules," says Dr. Den-

man, "I cannot pretend to describe in this place ; but the following letter, which he has quoted from a scarce work, corresponds so nearly with an observation it was my fortune to make some years before I saw this manuscript, that I may be excused relating it.

Referam hoc casu, quid beatæ meæ conjugis acciderit. Tertio fœtu gravidam, nono prægnationis mense, labores parturientium arripiunt circa noctem. Mox iuxta aqua (ut hic mulieres loqui amant) extra genitale, infantuli manus propendit. Ubi obstetrix advenisset, uxorem meam in sedili collocavit, eamque ad continuos conatus (me nolente nec instigante natura) adegit. Cum vero res eo modo non succederet, meamque conjugem supra sedem continuo detineret, ac diris cruciatibus illapsum ex uteri cervice manum brachiumque retrudere niteretur, quo fœtum ad exitum commodius disponeret. Ego præ dolore charæ meæ conjugis impatiens, ac indefinenter obstetricem admonens, ne quidem elapsi membri reductionem in uterum cogitaret possibile, multo minus moliretur, secundam obstetricem accersiri jussi, præsertim cum uxor mihi nunciaret, quod obstetrix eam dilaceraret per illam præconceptam ac miseram elapsi membri repulsionem. Cum insequenti die, obstetrix altera venisset, illa manus ad opus applicans remque diligenter explorans, uxorem meam in lectum deposuit, mandavitque ut se quietam detineret, nullosque conatus excitaret, nisi quando natura eam sui admoneret officii.

Interim obstetrix illa prudens et expertissima prædixit mihi amicisq. & præsentibus, uxorem meam non ante parturam, quam fœtus in utero, ex indebito situ, conatibus strangularetur, quod eventus docuit. Multiplicati sunt labores parturientis, et fœtus inflexo ad dorsum capite (salva matre) prodiit in lucem*."

Dr. Willoughby was the grandson of Sir Francis Willoughby, so much celebrated in the time of Queen Elizabeth ; and Dr. Denman is of opinion, that the same and fortune acquired by Dr. Chamberlen, induced so many gentlemen as now practised midwifery to undertake the study of it, and to make use of instruments as he did. Among these was Dr. Bamber ; but others attempted to raise their reputation by a quite contrary practice. In 1723 Dr. Maubray published a book on midwifery, entitled *The Female Physician, or the Whole Art of New Improved Midwifery*, in which he violently declaims against the use of instruments ; and next year he published an appendix, under the title of *Midwifery brought to Perfection*, in which he sets forth in a pompous manner the improvements he had made. This, however, was no more than a syllabus of his lectures, he having been the first public teacher of midwifery in Britain.

Dionis's Midwifery made its appearance in 1719, and Deventer's

* Novus exortis hominus et animalum. AYTON. EVERARD.

in 1729. The latter, in Dr. Denman's opinion, was more esteemed than it deserved, as he generally condemns the use of instruments; notwithstanding which, he thinks it a considerable acquisition to the science in this country.

In 1727 appeared Dr. Simson's work, entitled *The System of the Womb*; "a work (says Dr. Denman) of sufficient ingenuity, but not of much use in practice, even if his theory had been true." Chapman's *Treatise on the Improvement of Midwifery* appeared in 1733. He was the second public teacher of midwifery in London, and was the first who described the *forceps*; the description appearing in the third volume of the *Edinburgh Medical Essays*. His work contains many useful observations. Next year Dr. Hody published a collection of cases in midwifery, written by Mr. William Giffard. They are 275 in number, occurred in his own practice, and appear to be written with great fidelity. He also gave a plate of the forceps; and, in Dr. Denman's opinion, was among the first who asserted that the placenta might be attached over the *os uteri*. In 1736, Thomas Dawke published a book, entitled *The Midwife rightly Instructed*; and, the following year, *The Midwife's Companion*, by Henry Bracken: but these, as well as some others which made their appearance about the same time, are of no importance.

About the same time also, Sir Richard Manningham quitted the profession of pharmacy, and applied to the study and practice of midwifery. He had received the honour of knighthood in 1730; and in 1739 he established a small hospital or ward for lying-in women, which was the first thing of the kind in the British dominions. Here also he gave lectures; and at the same time qualified his students for practice. He became very eminent in his profession, which he exercised with great humanity, and was accounted a man of great learning. He published a work, entitled *Compendium Artis Obstetricæ*; and another, called *Aphorismata Medica*, relating also chiefly to the art of midwifery. In 1741, Sir Fielding Oulde of Dublin published *A Treatise of Midwifery*; the most important parts of which are some observations on the continued thickness of the uterus during pregnancy, with his description of the manner in which the head of the child passes through the pelvis at the time of the birth; the truth of which observations have since been universally acknowledged.

From this time the English, according to Dr. Denman, might be said "to have been in full possession of the subject; all the books written in the neighbouring countries being translated, public lectures given, and an hospital established for the further improvement of the art: and as all the books printed since that time may readily be procured, every gentleman has an opportunity of forming his own opinion of their respective merits. But the College of Physicians (adds he), having been pleased, in the year

1783, to form a rank in which those who dedicated themselves to the study of midwifery should be placed, I trust that future accounts will be more correct; and that this measure adopted by the college will promote the public benefit, by confining the industry and abilities of one class of men to this branch of the profession."

In Scotland, though there has for a long time been professors of midwifery, yet the surgeons likewise practise that art as well as their own. Several approved treatises on the subject have appeared in this country; particularly a system by the late Dr. Smellie, which has been long held in the highest estimation in both kingdoms; and, within these few years, several excellent performances by Dr. Alexander Hamilton of the university of Edinburgh: and, indeed we may venture to affirm, that both theory and practice of midwifery are better understood in Britain than in any other part of the world.

THEORY OF MIDWIFERY.

PART I.

THE subject of this Part comprehends, in a particular manner, the anatomical structure of the pelvis, and other parts concerned in the formation of the child, the theories of conception, generation, &c. of the nutrition, growth of the fœtus, and of the powers by which it is expelled. Of all these some account must here be given; but as the particular description of the pelvis belongs peculiarly to this subject, we shall begin with an account of its various conformations, as they in a great measure affect women at the time of child-bearing, and very particularly contribute to the ease or difficulty of the labour.

CHAP. I. OF THE FEMALE PELVIS, AND ITS CONTENTS.

SECT. I. *Of the Pelvis.*

DR. DENMAN observes, that the term *pelvis* has been applied indiscriminately to the inferior cavity of the abdomen. and to the bones which form that cavity; but he thinks it most proper to confine it to the bones, and to distinguish the hollow by the name of the cavity of the pelvis. In the state of infancy, the pelvis is composed of five or six bones, most of which in the fœtus are soft and flexible; some of them being, in a manner, quite cartilaginous; while the edges of others are found covered with a substance of the same kind. This construction is thought by some to facilitate delivery, as the pelvis of the fœtus can thus change its figure like the cranium; but M. Baudelocque thinks this an erroneous opinion, “consonant neither to reason nor experience.”

In the adult, the pelvis consists only of four bones, viz. the *sacrum*, the *os coccygis*, and the two *ossa innominata*. These be-

ing described in books of *Anatomy*, we shall here content ourselves with observing, that an anchylosis is not unfrequently formed between the os sacrum and the ossa innominata; and sometimes an imperfect joint in consequence of their separation; whence the part is very much weakened, and the person ever afterwards walks with difficulty.

The os coccygis in infancy is cartilaginous; but in the adult it is composed of three, or more frequently of four bones, connected by intermediate cartilages, the uppermost of which is somewhat broader than the lower part of the os sacrum. In some subjects these bones coalesce, and form a single one: in others an anchylosis is formed between the sacrum and os coccygis; in consequence of which the latter is shortened and turned inwards, so as to obstruct the head of the child in its passage through the pelvis. But the impediment thereby occasioned at the time of labour may be overcome by the force with which the head of the child is propelled, and the os coccygis again separated from the sacrum with a noise loud enough to be distinctly heard. In general, however, some regressive motion is preserved between the bones of which the os coccygis is composed; and that which is produced between the *sacrum* and *os coccygis*, when the latter is pressed by the head of a child passing through the pelvis, occasions a considerable temporary enlargement of the inferior aperture of the pelvis. Any lateral motion is prevented by the insertion of the *coccygei* muscles, part of the *levatoris ani*, and some portions of the sacro-sciatic ligaments into the sides of the *os coccygis*.

The *os innominatum*, in a woman of the ordinary size, is about six inches broad from the anterior to the posterior superior spine. The height is nearly six inches and a half from the anterior spine to the bottom of the tuberosity of the ischium, and seven and a half if taken from the middle of the crista of the ilium; and hence we may in some measure be enabled to determine the depth of the cavity of the pelvis laterally from the superior to the inferior strait.

"The ossa pubis," says M. Baudelocque *, "are joined together by means of a substance which has always been described by the name of cartilage, though it differs as much from that as from a ligament. According to some anatomists, each *os pubis* is covered by its own cartilage. Their junction is not a true synchondrosis; but a close articulation, which admits only of insensible motions. By carefully examining this symphysis, we observe that each os pubis is really covered by a cartilage at its anterior extremity; that this cartilage is thicker before than behind, and in its superior and inferior parts than in the middle of its

* See his *System of Midwifery*, translated by Mr. Heat.

length; that these bones, thus covered, are bound together by means of a substance which seems ligamentous, and whose fibres, which are mostly transverse, go from one to the other; that these fibres are so disposed, that the deepest are the shortest, and the most superficial the longest; that they leave between one another a kind of meshes filled with reddish corpuscles, very like those which are seen about the moveable articulations, and which are commonly thought to be synovial glands. We observe further, that this fibrous and ligamentous substance does not occupy the whole thickness of the symphysis, and does not bind the bones together through the whole extent of the surfaces presented by their anterior extremities; but that there exists a true articulation of the species known by the name of *arthrodia*. If we open this symphysis towards the inside of the pelvis, after a cellular tissue very thin and loose, which we meet with first, we discover a capsular membrane, whose most apparent fibres are transversal; afterwards two cartilaginous facettes, smooth, polished, and moist, from six to eight lines long and two broad, of a figure a little semilunar, lightly convex on one bone, and concave on the other. These facettes comprehend nearly the middle third of the length of the symphysis and the posterior third of its thickness.—This symphysis then presents in one third of its extent, or thereabouts, a true articulation; and in the rest a *syneurosis* and *synchondrosis* at the same time.

“ This compound and articular substance, being detached from the bones, forms a kind of wedge, whose base constitutes the anterior part of the symphysis, and its edge the posterior; so that these bones seem to touch towards the inside of the pelvis, and appear separated to the distance of several lines without: the base of this kind of wedge is generally from four to six lines broad towards the middle of the length of the symphysis, and from eight to ten in the inferior and superior parts, while the edge at most does not exceed one line. Its thickness, taken according to that of the bones, is greater above than below; where this substance, become thinner, forms what is called the triangular ligament.

“ This first means of union was not sufficient to give these bones the firmness necessary for the free exercise of the functions to which the pelvis is destined. It is covered and fortified in all parts, but especially before, by bundles of ligamentous and aponeurotic fibres. Independently of the thick and very strong ligamentous structure which forms the fore-part of the symphysis, we observe bundles of tendinous fibres which decussate each other a thousand ways, some of which arise from the interior *graciles* and the external *obturator*s, and others from the external portions of the inguinal rings. The triangular expansion which terminates the symphysis inferiorly, and which forms the top of

the arch of the pubes, seems to have other uses than that of binding the bones together.

“ The manner in which the *os sacrum* is connected with the *ossa innominata*, differs considerably from that in which the *ossa pubis* are joined. Here each articular facette is covered by a true cartilaginous layer, and there are inequalities on each side, which mutually receive one another, while nothing of that kind is observed in the junction of the pubes; neither are there in any part of these articular facettes any of the transverse fibres which go from one bone to the other in the *ossa pubis*: these articulations, therefore, derive all their strength from the great numbers of ligaments which surround them. Most of these are very short, and do not extend beyond the edges of the articular facettes: but there are others longer to be seen above, below, and behind these symphyses.

“ The *os sacrum* is not only articulated with the ilia, but with the spine and coccyx. It is joined in three places to the spine: 1. By an oblong and cartilaginous impression in the middle of the basis, which unites it to a similar impression in the body of the last *lumbar vertebra*, by means of an elastic substance. 2. By two little articular masses fixed in the posterior edge of that first impression, and which answer to similar substances in the vertebra above mentioned.

“ The elastic substance which unites the middle of the base of the sacrum to the spine, is entirely similar in its nature to that seen between the bodies of all the vertebrae. Being very thick before and thin behind, the angle resulting from the disposition of the articular facettes of these two parts is rendered more obtuse. This *sacro-vertebral* junction is surrounded by an infinity of ligaments, some without and others concealed within the spinal canal. All motion is not prohibited by this kind of junction; but, as it only depends on the compression of the intermediate substance, it can but be very small. The motion between the body of the last lumbar vertebra and the base of the sacrum, is never extensive enough to make any alteration in the degree of acuteness of the angle which results from their junction; but the convexity of the lumbar column may be augmented or diminished by means of a compound motion, formed of those which take place between each of the lower lumbar vertebrae and between the lower ones of the back. This augmentation or diminution of the convexity, in proportion as the trunk is bent backward or forward, or by raising or lowering the breech when the woman lies on her back, deserves particular attention in the practice of midwifery; for thus we may make a favourable change in the direction of the axis of the pelvis, relatively to that of the trunk, to that of the uterus, and in the direction of the expulsive forces of the latter, which may be rendered more or less

efficacious according to circumstances, by making the woman preserve a proper attitude.

“The junction of the coccyx with the sacrum permits the former to move, and yield to the different degrees of pressure it undergoes in different circumstances. The mobility is very great in youth; but diminishes insensibly as the patient grows older, and at last is totally lost. If entirely lost, or considerably diminished, before a woman is past child-bearing, it produces sometimes, though very rarely, an obstacle to delivery. The connections of the pelvis with the inferior extremities are not of much importance in midwifery. The natural course of labour cannot be disturbed by any fault in their configuration when the pelvis itself is well formed; but in general they are consequences of a deformity of it. They are *enarthroses*, which allow of motion in every direction.”

The pelvis is divided into two parts, called the *upper* and *lower*, by a ridge sometimes elliptical, and sometimes of other shapes. The breadth of the upper part from the anterior superior spine of one ilium to another, is usually eight or nine inches, and its depth from three to four. At the back part of it is the projection of the lumbar vertebræ, and at the sides the *iliac fossæ*. The lower part forms a kind of canal, whose entrance and outlet are somewhat narrower than the middle; whence it has been distinguished into the *superior* strait, the *inferior* strait, and an excavation.—The *superior* strait is a kind of circle forming the entrance of the canal; its form, however, is various, as is also its obliquity from behind forwards. M. Levret has fixed this last at an angle of from 35 to 40 degrees.

The smallest diameter of this strait is generally about four inches, extending from the middle of the projection of the sacrum to the superior and internal part of the symphysis of the pubes. The other diameter is usually about an inch longer, extending from one side of the strait to the other. The oblique diameters are a medium betwixt the two former, extending diagonally from each acetabulum to the sacro-iliac junction of the opposite side. The pelvis is cut at right angles by the two former, and into acute ones by the latter; but the diameters, considered in relation to delivery, are somewhat different from those just mentioned, some changes in them being occasioned by the soft parts within the pelvis.

The inferior strait is in general smaller, and of a more irregular figure than the other, being not formed, like it, entirely of bones. The edge, rendered unequal by three deep and large notches, is completed behind and at the sides by the sacro-sphinctic ligaments, forming a kind of circular notch before, called the *arch of the pubes*. The diameters of it are commonly about four inches in length; and though the transverse, which extends from

one *ischium* to the other, be often a little longer than that which extends from the fore to the back part, it must be reckoned the smallest with regard to delivery; because the latter augments in proportion as the point of the coccyx recedes from the pubes. We must also remember, that the great diameter of the inferior strait is parallel to the smallest of the superior, and that it crosses the longest of that strait at an angle more or less acute; and by carefully attending to this, we may, in many cases, with the finger alone, when properly directed, remove obstacles which could not have been overcome even by means of instruments, without exposing the child to great inconveniences. It is likewise favourable to delivery that the middle part of the pelvis is a little larger from before backwards than the straits; which disposition proceeds from the curved figure of the *os sacrum*.—On one side this curve diminishes the numerous and long-continued frictions which the child's head would necessarily undergo if the pelvis were equally broad in all its parts; and on the other side it is equally useful in preventing the effects of a long and forcible pressure on the sacred nerves, which a flat form of the sacrum would have rendered unavoidable during the whole time of the passage of the head. The cavity of the pelvis is commonly from four to five inches deep behind, three and a half at the sides, and one and a half at most before.

The arch of the pubes, which at the top is only from one inch and a quarter to one and two thirds in breadth, augments gradually as it descends; so that at the bottom its sides are three inches and a half, or even four inches, separated from one another; that is, if we take the line which is looked upon as the transverse diameter of the inferior strait for its base; the height being about two inches.

The axis of the superior strait of the pelvis cannot well be determined; but that of the inferior one, with regard to delivery, must be considered as passing through the centre of the opening of the vagina dilated by the child's head. Its direction is then so much inclined from behind forward, that its superior extremity traverses the lower part of the first false vertebra of the sacrum, and crosses that of the other strait at a very obtuse angle.

Hitherto we have treated only of that form of the pelvis which is most favourable for delivery: but the proportions and forms of it are various; and as it differs from those above described, the delivery is attended with more or less difficulty.

The defects of the pelvis, with regard to facility of delivery, consists in its being either too large or too small. At first sight it might be imagined, that a large pelvis would make the delivery more easy, as the head of the child will thus be exposed to less friction, be more easily expelled, and the labour be less painful. But women who have a very large pelvis, are subject to those in-

conveniences which arise from an obliquity of the uterus, or even to a descent of it altogether; especially in the time of labour, when that viscus, being already charged with the weight of the child, is entirely subjected to the expulsive power of the abdominal muscles. In women who have had several children, the uterus is but weakly retained by its ligaments; and in subsequent pregnancies it descends still lower, until at last it rests on the margin of the pelvis. This, however, does not take place before the conclusion of the first four or five months: before that time its weight lies principally on the extremity of the rectum; and by this, as well as by its bulk, the discharge of the urine and fæces is impeded, and accidents sometimes ensue from the compression of the veins which pass through the pelvis. These symptoms sometimes vanish about the middle of pregnancy, but reappear towards the latter end; because the head of the child is early engaged in the pelvis, and acts on the same parts that the whole uterus did before. Besides all these accidents, there are others which may take place at the time of delivery; so that, upon the whole, it cannot be reckoned any real advantage for a woman to have a large pelvis.

The accidents, however, which arise from too great a size of the pelvis, are much more easily remedied, and in themselves less dangerous, than such as arise from its narrowness. This defect may be considered as either relative or absolute. The former arises from an excess of size in the head of the child; the latter from a bad conformation of the pelvis itself. The absolute narrowness of the pelvis rarely affects all parts of it at once: it is generally found only in one of the straits; in which case, the other is usually of the natural size, nay, sometimes even larger than natural. The fault is more frequently in the superior than the inferior strait; and it is remarkable, that it most commonly affects the strait in its small diameter; very rarely in its transversal; sometimes affecting only one side. In the inferior strait it is generally caused by the approximation of the tuberosities of the ilchia.

"It is easy," says M. Baudelocque, "to determine why the superior strait is more frequently deformed than the inferior; and why it is almost always between the pubes and sacrum that it is defective respecting delivery. If we consider the direction of the forces which act on the pelvis of rickety children, in whom the bones are at the same time softer and more loosely connected than in the natural state, we shall see, that the greater part of those forces tend to carry the base of the sacrum forward and the *os pubis* backwards. Whether the child be standing or sitting, if we attend to the direction of the spinal column, we shall see that the weight of the body must insensibly push the base of the sacrum towards the pubes; and that it acts in the same manner on the

inner parts of the acetabula, which serve as a fulcrum to the inferior extremities when the child is standing or walking. The *ossa pubis*, particularly in these latter cases, must be pushed towards the sacrum; in such a manner, however, that their posterior extremities often approach a little nearer to the projection of the base of that bone than their anterior extremities, or the symphysis. If the superior strait does not constantly present the same figure in deformed *pelvices*; if it is sometimes larger on one side than the other; if one of the acetabula is nearer to the sacrum, while the other approaches less; if the symphysis of the pubes is removed, in many cases from a line which would divide the body into two equal parts—it is because the rickets have not equally affected all the bones of the pelvis, nor equally hurt all their junctions; and because the attitude which the child takes in walking or sitting may change a little the direction of the compressing powers just mentioned. The weight of the body may also equally hurt the form of the inferior strait, but variously, according to the most usual attitude of the child, and the direction taken by the spinal column. For example: If it sits much, the sacrum will be more curved, and the strait more contracted from before backwards: in this attitude, if it inclines habitually to one side, one of the ischiatic tuberosities will be thrown inwards, the *os ilium* will be more elevated, &c. The action of the muscles which are attached to the pelvis, the pressure of clothes, and that which the arms of the nurse exert on this part, contribute also something to the deformities in question, but much less than the weight of the trunk: whence we see, of what importance it is to keep rickety children in bed, and leave them at liberty; instead of obliging them to walk, to sit up, or have them constantly in the arms, as is done almost every-where."

The dimensions of the pelvis itself vary no less than the contour of the straits. If the diameter of some, taken from the pubes to the middle of the projection of the *os sacrum*, be only a few lines; in others the defect is several inches, so that scarcely a single inch is left between these bones. These extremes, however, are not frequently met with; and the latter of them is never so great in the inferior as in the superior strait. On comparing the dimensions of a well-formed pelvis with those of a child's head, we shall find that the former might admit of being some inches less in circumference, and yet be large enough for an easy delivery. The circumference of a common head is usually no more than ten inches and a quarter, or ten and a half. The first degree of narrowness in any pelvis therefore must be, when each diameter is something less than three inches and a half. M. Baudelocque says, that he has seen *pelvices* in which the distance of the pubes from the sacrum superiorly was no more than six or eight lines; and he had in his possession two others, in one of which the

distance from the back of the right acetabulum to the projection of the sacrum was only three or four lines, and the other had but 14 lines between that projection and the symphysis of the pubes.

The narrowness of the pelvis is to be accounted one of the principal causes of difficult delivery.—When an opening of only three inches and a quarter is left, the labour must be more difficult than when it is three inches and a half, as the number of frictions which the child's head must undergo are then more numerous and frequent. When there is an opening only of three inches, the labour must be still more difficult; but still there are instances of natural deliveries without any assistance, notwithstanding the disproportion betwixt the size of the child's head and pelvis. This may even happen when the diameter of the pelvis is still smaller, such as two inches and three quarters, or two and a half. M. Solayres observed in a case of this kind, that the head was lengthened in such a manner, that its longest diameter was eight inches all but two lines, that which goes from one parietal protuberance to the other being reduced to two inches five or six lines; and M. Baudelocque has observed similar changes in the form of the head, and the respective lengths of its diameters at the instant of birth, where the child was equally deformed, the long diameter being seven inches, and the transverse one two inches six or seven lines. The children were in good health; and the day after their birth their heads wanted very little of the usual proportions.

But when the small diameter of the pelvis is less than two inches and a half, the head of the child cannot pass; and then some of the dangerous surgical methods must be undertaken, which frequently prove fatal both to the mother and child. Even when the pelvis is two inches and a half in diameter, the natural delivery is not always without danger to both; as, on one hand, the soft parts which cover the pelvis are subjected to such violent pressure that they become inflamed, exquisitely painful, and at last are even threatened with gangrene; on the other, the bones of the child's cranium riding over one another, or sometimes fractured and depressed, wound the brain, and produce internal extravasations, which generally prove fatal. The bad consequences resulting from a deformed pelvis, shew themselves sooner or latter, according as the superior or inferior state is vitiated. When both are so, the obstacles to the birth begin to manifest themselves as soon as the labour begins; and sometimes those at the superior strait are so great, that the expulsive powers are exhausted, and the head stops there; or if it be pushed further into the pelvis, and stopping there, it will remain incapable of being delivered without the assistance of art. The head cannot pass this strait without being in a considerable degree elongated; and when it enters the pelvis, the cavity being there sufficient for it, it naturally returns

to its former dimensions, at least in part, and more or less so as it stays a longer or shorter time. The same conformation of the head, however, which enabled it to pass the first strait, is still more necessary to enable it to pass the second : and hence the symptoms which had come on with the first pains, sometimes disappear in a great measure during the time that the head stays in the evacuation ; but increase to a greater degree than ever when the strong labour comes on.

When the superior strait alone is contracted, the head advances at first with great difficulty ; but as soon as the parietal protuberances have cleared the strait, the other parts of the pelvis being relatively or absolutely larger, the head passes them with so much ease, that the delivery is frequently terminated by a few pains. The contrary is observable when the fault is in the inferior strait, if the first be of the usual size. The head then descends easily into the lower part of the pelvis ; but cannot proceed any further, until it overcome the obstacles which obstruct its course, and render it difficult and laborious. In this case, the symptoms attending obstruction appear later than in the former. In these cases, however, it is necessary that the practitioner should accustom himself by practice to form a just estimate of the powers of nature, otherwise he may easily deceive himself ; in the former, supposing that a delivery is impossible ; and in the latter, that a delivery will be easy which cannot be effected without the assistance of art. An instance of this is given by our author, in a case to which (he says) more than forty persons were witnesses.

The operator pronounced that the woman would be speedily delivered, on account of the facility with which the child's head had engaged with the first pains ; and attributing the obstacles which soon after obstructed its course to another cause, rashly destroyed the child by using the crotchet, when its life might have been preserved by other means, having waited two days in blind security, expecting a natural delivery. M. Baudelocque obtained possession of the pelvis of this woman after she died ; and tells us, that the circumference of the superior strait of the pelvis, when divested of all its coverings, measured 14 inches, but the inferior only *nine*. The distance from the point of the os sacrum to the symphysis of the pubes, as well as the interval between the ischiatic tuberosities, was but three inches. The cavity of this pelvis diminished insensibly in breadth from one strait to the other, and was as regular as possible in its contour.

The excavation, or middle part of the pelvis, is much more seldom defective in its form than the straits ; and when this is the case, it must arise from some exostosis, or from the sacrum describing a right line in its anterior part, instead of being curved as usual. The straight and flat form of the sacrum generally produces fewer obstacles to delivery than the too great curvature of

It. The former fault generally affects only the cavity of the pelvis, and cannot hinder the passage of the child, if the canal be otherwise well disposed : but the latter, or too great a curve of the sacrum, commonly proves injurious to both straits, contracting them from before backwards, and at the same time diminishing the depth of the pelvis at the back part, as well as the respective height of the arch of the pubes. In these cases the head, though it passes the first strait with difficulty, cannot pass the second ; being stopped in its course by the inferior part of the sacrum before the occiput is long enough to engage under the arch.

Labours may also be rendered difficult by too great a length of the symphysis of the pubes ; a want of elevation, or breadth of the arch of these bones ; the length and wrong direction of the ischiatic spines, as well as a consolidation of the coccyx with the point of the sacrum. These faults, however, are very rare, if we except the consolidation of the coccyx : they are scarce ever met with alone, and are generally the consequences of a bad conformation of the rest of the pelvis. Even this consolidation, however, though more common than the other faults, yet cannot obstruct delivery so frequently as has been imagined ; and when it does so, it is only in women who have a narrow pelvis. Our author denies the position laid down by some, that the head of the child, in all cases, pushes back the point of the coccyx half an inch, or even a whole inch. Those who assert this (he says) know not the relation betwixt the dimensions of the head and the inferior strait in most women. Whence he cannot recommend a precept founded upon this principle, by which it is directed to push back the coccyx, when the head, though low down, cannot disengage itself easily.

We must now consider a subject on which the writers upon midwifery have been greatly divided, viz. the separation of the bones of the pelvis in the time of labour. Some have imagined that this separation took place in all labours ; others that it happened only in difficult cases ; some, that it indicates a morbid state ; and some that it was quite impossible.—M. Baudelocque allows the possibility of such a separation, but denies that it happens so frequently as is imagined. “ Experience (says he) demonstrates, that this separation, far from being common, is very rarely met with, and is not more usual after a laborious than after an easy labour, nor in a distorted pelvis than in one well formed. I have sought for it twenty times in all these cases, by opening the bodies, and have scarcely met with one which could remove all doubt of its existence.” In those cases where it takes place, he is of opinion, that the filtration of serum into the ligamentous tissue of the symphysis, must be regarded as the usual predisposing cause. The remote cause, of consequence, must be whatever produces this filtration. This, he thinks, cannot be done merely by the

pressure of the gravid uterus on the trunks of the vessels which are distributed to these symphyses. An alteration in the fluids themselves he supposes likewise to be necessary.

But though the predisposing cause of this separation must be the relaxation of the symphyses by the infiltration of serum, we are not to look upon the swelling of the cartilages by means of this infiltration to be the immediate cause: for however the ligaments may be relaxed, the cartilages which incrust the extremities of the ossa pubis, as well as the articular facettes of the ossa ilia and the sacrum, are no thicker; so that they cannot, as some have supposed, act like wetted wedges by which large blocks of stone may be cleaved. "The wedge by which the bones of the pelvis are separated (says our author), does not act between the extremities of these bones, but in the circle formed by their assemblage in the pelvis itself: it is the uterus charged with the produce of conception in the latter periods of pregnancy, and the child's head forced down by the action of the uterus, and of the abdominal muscles in time of labour."

This separation, however, is not always the effect of a relaxation and stretching of the ligamentous tissue of the symphysis. In some cases, where the obstacles which obstruct the passage of the child are very great, and the efforts for its expulsion very strong and lasting, the symphyses tear, and permit the bones to separate much further than they could have done by a simple relaxation. "I must add (says our author), that it is not the symphysis of the pubes, properly speaking, which tears; for no effort can break the ligamentous substance which unites these bones to each other; the symphysis detaches itself from one of them, and leaves the bone naked." The separation in question has likewise frequently taken place in instrumental deliveries, to which the natural efforts seemed to contribute nothing; and it has also been found in consequence of a stroke or fall.

"Being deceived in the principle of this separation (says M. Baudelocque), they necessarily erred in the consequence deduced from it. It has been so firmly believed to take place in all labours, that it was thought to be absolutely necessary; and that without it many women could not be delivered without extreme difficulty. Having thus mistaken the necessity and pretended advantages of this separation, the natural resistance of the symphyses, and above all the dryness and rigidity necessarily induced in them by age, were consequently reckoned among the causes of difficult and laborious births. Obstacles have been attributed to the state of these symphyses, which merely depended on the resistance of the neck of the uterus, and of the external parts; and it has been recommended to moisten and relax them by the use of baths, cataplasms, liniments, fomentations, &c. But what can be expected from such methods, when delivery is obstructed by a narrow

pelvis? Will any one venture to assert, that he has once by such means obtained the effect he expected, and that he has thus assisted labours which could not otherwise have been terminated but by the Cæsarean operation, as has so often been published? I should have dispensed with demonstrating the fallacy which has prevailed on this point, if it had not led some practitioners into a very serious consequence. In order to appreciate all these means, and fix the degree of confidence to be placed in them, supposing that they could operate to the relaxation of the symphysis of the pelvis, it is necessary to determine what degree of amplitude can be given to that cavity by the separation of the bones which constitute it. The ossa pubis cannot separate without augmenting the circumference of the pelvis; but how much will its diameter be increased? If the circumference were perfectly circular, every possible diameter would partake a third of that augmentation: but as the entrance of the pelvis is in general the more elliptic as it deviates more from its natural state, it follows, that its different diameters cannot increase in the same proportion; and we may say that there is none but the transverse one which can become larger. In a moderate separation the *antero posterior* diameter is scarce at all augmented; and it has been repeatedly demonstrated, that the ossa pubis must separate at least an inch to procure two lines in that direction; while the transverse diameter shall be increased six lines, and often more.

“The pelvis being larger in most women than is necessary for their delivery, the separation of the bones could be of no advantage to them, nor render their delivery more easy. Far from regarding it, with some ancient authors, as a benefaction of nature, we ought to consider it as an additional source of inconveniences in those women who are subject to it: for, on one side, we see that a pelvis too large exposes the woman to a number of accidents; and on the other, that there are some which inevitably accompany the separation, and the mobility of the bones which form that cavity. Far from favouring delivery in all these cases, it could not but render it more tedious and painful to the woman, as experience has convinced me. If we ought to expect any real advantage from it, considering it only with respect to the passage of the child, it could only be in those women who have the pelvis deformed, and where the defect which rendered delivery impossible did not exceed two lines at the most; since a separation of an inch cannot procure an augmentation of more than two lines in the small diameter of the superior strait, which is almost always that which occasions the greatest obstacles to the exit of the child. If from a separation of an inch, which has never taken place between the ossa pubis without a rupture of their symphysis, we are not to expect an augmentation of more than two lines in the direction of the little diameter of the superior strait, what can we obtain from a separation

always much less, and so little apparent in most women that we may doubt its existence? The examination of a great number of women who have died in child-bed, has proved to me that it is excessively rare for the separation in question to amount to two lines; and I never found it exceed that but once. But supposing (what is impossible) that art could procure a separation of an inch between the ossa pubis without dividing their symphysis, what practitioner would dare to affirm, without fear of being deceived, that the volume of the child's head did not exceed the little diameter of the superior strait by more than two lines? If it is difficult to estimate justly the degree of opening in the pelvis, it is much more difficult still to judge of the child's head; and it is only by taking the mean between the largest and the smallest that we usually establish the relation of its dimensions to those of the pelvis; but a *therabouts*, in the case supposed, cannot supply the place of that precision which would be necessary."

From his reasoning upon this subject, M. Baudelocque concludes directly against the operation of cutting the symphysis of the pubes, as being not only useless, but attended with very dangerous consequences. "When this separation (says he) has been suddenly made, severe pains in the parts divided, an impossibility of walking, and sometimes even of moving the inferior extremities, inflammation, fever, abscesses, caries, and lastly death itself, have generally been the effects of it; but when a relaxation only takes place, the consequences are less severe; a painful and tottering walk being the only symptom attending it. If the relaxed symphysis at last grow firm again, if the bones of the pelvis recover their former stability, if the lameness goes off entirely in some women, how often, on the contrary, have we not observed an inability to walk, or even to move the legs, without violent pain, continue for years afterwards?"

These violent symptoms frequently attend even slight separations of the bones in question. M. Baudelocque gives an instance of a woman who had kept her bed ten months, being all that time afflicted with the most excruciating pains in the junction of the ossa pubis, and of one of the ilia, with the sacrum, whenever she attempted to move the inferior extremities, though no separation of the symphysis could be discovered, nor any thing besides a slight mobility in that of the pubes. The accident had been perceived during the time of labour, and the midwife had been accused of luxating the bones.

Dr. Denman has also treated this subject at considerable length. He informs us, that for many centuries it was believed that these bones were always separated during the time of labour; or that there was a disposition to separate, and an actual separation, if the necessity of any particular case required that enlargement of the cavity of the pelvis which was consequent to it. The degree of

separation was also supposed to be proportioned to such necessity ; and when this did not happen naturally, instruments were made use of for distending the parts : and, on the same principle, the section of the symphysis of the pubes has been recommended. " This opinion (says he) ought probably to be assigned as one reason for the superficial notice taken by the early writers on midwifery of those difficulties which are sometimes found to occur in parturition from the narrowness or deformity of the pelvis. To this may also be referred much of the popular treatment of women in child-bed, and many popular expressions in use at present. But this opinion has been controverted by many writers, who assert, that there was neither a separation nor a disposition to separate ; but that, when either of them did happen, they were not to be esteemed as common effects attendant on the parturient state, but as diseases of the connecting parts. The disputants on each side have appealed to presumptive arguments, and to facts proved by the examination of the bodies of those who have died in child-bed, in justification of their several opinions. But, notwithstanding all that has been said, I know not that we are authorized by the experience of the present time to say, that a separation, or a disposition to separate, prevails universally at the latter part of pregnancy, or at the time of labour : yet, that these effects are often, if not generally produced, may be gathered from the pain and weakness at the parts where the bones of the pelvis are joined to each other before and after delivery. In some cases also pregnant women are sensible of a motion at the junction of the bones, especially at the symphysis of the ossa pubis ; and the noise which accompanies it may sometimes be heard by the bystanders.

" A strong presumptive argument in favour of the separation of the bones has been drawn from quadrupeds. In these the ligaments which pass from the obtuse processes of the ischia to the sacrum, on which the firmness of the junction of the bones very much depends, and which at all other times resist any impression attempted to be made upon them, are for several days previous to parturition gradually deprived of their strength, and the animal walks in such a manner as would incline us to believe could only be produced by a separation of the bones of the pelvis. Now it is not reasonable to conclude, that a circumstance which generally takes place in one class of viviparous animals should never occur in another, especially in a matter in which there is not essential difference."

Notwithstanding these arguments, however, Dr. Denman does not look upon the matter to be yet absolutely decided. " No person," he says, " who has been conversant in the dissection of women who have died in child-bed, can have wanted opportunities of seeing every intermediate state of these parts, from a separation

in which the surfaces of the bones were loosened, and at a considerable distance from each other, to that in which there was not the least disposition to disunite."

When this separation takes place beyond a certain degree, it is to be looked upon as morbid: and, he says, that it may be produced by the two following causes: "1st. A spontaneous disposition of the connecting parts. 2dly. The violence with which the head of the child is protruded through the pelvis." Of each of these cases he gives an example. The first was of a young lady of a healthy constitution, who had been married in the 21st year of her age, and in 1774 was delivered of her third child, which was unusually large, and the labour was severe and tedious. For several days before delivery she had been so much afflicted with pain and weakness in her loins, that she could not walk without assistance. She recovered without any unfavourable circumstance, excepting that for several weeks she was incapable of standing upright, or putting one foot before the other; the attempt to do either being attended with pain and a sensation of looseness and jarring, both at the parts where the ossa innominata are joined to the sacrum, and at the symphysis of the ossa pubis. By the use of strengthening medicines she recovered, and in a few months was perfectly well.

It being suspected that the complaints above mentioned had proceeded from too frequent parturition, she was advised to suckle her child for a longer time than usual; and accordingly continued a nurse for 15 months. Soon after this she became with child a fourth time. The complaints which had accompanied her former pregnancy now came on sooner, and with greater violence than before, inasmuch that for three weeks before delivery she could neither walk nor stand, and there was reason to suppose that the bones of the pelvis were separating. She was delivered on the 7th of July, 1777, the labour being accompanied with faintings, great irritability, and a total inability to move her inferior extremities. A few days after her delivery she had a fever, which terminated in an abscess in one of her breasts, by which she was confined to her bed for near seven weeks. In nine weeks she could walk with crutches, and received considerable benefit by being sent into the country; and likewise, as she imagined, by drinking half a pint of infusion of malt twice a-day. In about five months she was able to walk without assistance; though sometimes sensible of the motion of the bones, which seem never to have been perfectly united.

About Christmas the same year, this lady became again pregnant; and in the month of July, 1778, she began to feel an inability to move; which, however, was attributed to the heat of the weather: but on a sudden the pain and weakness of her back returned to such a degree, that she could walk no more till the 11th

of October, when she was delivered of a fine child, but after a most severe and tedious labour, occasioned in a great measure by her being totally unable to move. The symptoms after her delivery became very extraordinary and alarming. On the fourth day a fever came on ; and though this was soon removed, the pain at the junction of the bone still continued. She had no command of her inferior extremities ; and the pain, when she was moved, became so excruciating, that she felt as if tearing asunder. Her stomach was at all times much disturbed ; but when the pain became violent, a nausea, vomiting, or hiccough, came on. Strange sympathies were produced in various parts ; as a teasing cough, sneezing, sense of weight in her eye-lids, which could not be kept open though there was no inclination to sleep. There was a noise in the bowels, and other nervous affections, all of which ceased when the pain was allayed by opiates.

Having remained for several months in this deplorable situation, it was at last thought proper to raise her from her bed, and cause her to make an effort to stand or walk, lest her complaints should be made worse by such a long course of inactivity. She had now, however, totally lost the power of supporting herself ; the motion of the bones was plainly perceived ; and the consequences of every trial were so painful, that there was a necessity for desisting. In 1779 she was removed, upon a couch, in a boat to Margate, for the benefit of the air and sea-bathing, from which she was always sensible of receiving advantage. In this place she continued to reside ; and in *eight years* after her delivery became able to walk without crutches.

The second case was of a young woman of a healthy but delicate constitution, who was in labour of her first child. The pains were so strong, that the head of the child was forced through the external parts, and the perinæum supposed to be lacerated, in spite of all the opposition which could be made. At the instant when the head of the child was expelled, the operator perceived something to jar under his hand, and was even sensible of a noise, which he attributed to the laceration of the perinæum. In a little time the placenta was extracted without hurry or violence ; and a few drops of *tinctura opii* were given to allay the uneasiness which took place, and was supposed to be occasioned by *after pains*. On the following days, however, she complained of an uneasiness in the region of the abdomen ; but no particular notice was taken of it, as the milk was regularly secreted, and there was no symptom of fever ; but on the fourth day, when taken out of bed, she was found to be unable either to stand or sit on her chair by reason of the pain and weakness in the part of which she originally complained. This was afterwards conjectured to arise from a separation of the bones of the pubes ; to which conjecture the long continuance of the complaint seemed to give coun-

tenance. The conjecture was founded on the positions and attitudes in which the patient sought to find relief. The symptoms were as follow :—When she endeavoured to stand upright, which she could do better upon one foot than both, and with her feet close than at a distance, together with the pain at the symphysis, she had a sense of extreme weakness, accompanied with a faintness. When she first sat down on her chair, resting her elbows upon the arms, the complaints became tolerable. When she had remained a little time in this position, they again became importunate, and she supported herself with her hands upon her knees, and presently bent forwards, so as to lean her elbows upon her knees: this position became irksome, she was obliged to return to her bed, where she became immediately easy. When she first attempted to walk, she was compelled to bend forwards in such a manner as to rest her hands upon her knees, making a straight line from her shoulders to her feet. At the end of fourteen weeks, whilst she was in a coach, into which she had often been lifted for the benefit of air and exercise, she had a discharge which she supposed to be menstruous; but which, though it ceased before her return, gave immediate relief. From this time she became better every day, and in six weeks was able to walk. She had afterwards three children, with which her labours were easy, and she never had any return of the above-mentioned complaints.

From all this it is evident, that Dr. Denman differs considerably in his opinion from M. Baudelocque concerning the separation of these bones. According to him, it appears that this separation, though extremely painful, does not seem to be attended with *fatal* consequences; and with regard to the *quantity* of the separation, it must undoubtedly be sometimes much greater than what M. Baudelocque supposes; for Dr. Denman brings an instance from the 484th number of the Philosophical Transactions, in which the bones were separated to the distance of *four inches*. This happened in consequence of the starting of a horse when a gentleman was riding. He observes, however, that in women, the violence which the connecting parts of the bones undergo when the head of the child is protruded through the pelvis with extreme difficulty, sometimes occasions an affection of more consequence than even the separation of the bones themselves. This is the formation of matter upon the loosened surfaces of the bones, preceded by great pain, and other symptoms of inflammation.

In the beginning of this complaint, it is difficult to ascertain whether the connecting parts of the bones, or some of those contiguous, be the seat of the disease; but when suppuration has taken place in consequence of the injury sustained at the junction of the ossa innominata with the sacrum, the abscess has sometimes been cured by the common treatment, having formed in the neighbourhood of the injured part. At other times, when matter has begu

formed about the symphysis of the os pubis, hectic symptoms have ensued, and the cause of them only discovered after the patient died. In some cases the matter has burst through the capsular ligament of the symphysis at the inferior edge, or perhaps made its way into the bladder; and in others it has insinuated itself under the *periosteum*, continuing its course along the pubes, until it arrives at the acetabulum. Thus all the symptoms were aggravated; and the matter making its way towards the surface, a large abscess has been formed on the inner or fore part of the thigh, or near the hip; so that the patients have at last sunk under the fever, and profuse discharge from the ulcer. On dissecting those who have died in this manner, the track of the matter has been followed from the aperture of the abscess to the symphysis, the cartilages of which were found to be eroded, the bones carious, and the adjacent parts very much injured or destroyed. Our author imagines it possible, by means of some particular symptom, to discover whether or not there be any disposition in the parts above mentioned to suppurate, or to know when suppuration has taken place. In all cases of unusual pain, attended with equivocal symptoms, the parts ought to be examined with great care and attention: for where there is any disposition to suppurate, it might perhaps be removed by proper means; and when the matter is formed, if there be a swelling in the symphysis, and, more especially, if a fluctuation could be perceived, the propriety of making an incision to evacuate the matter, and prevent further bad consequences, might be determined.

With regard to the possibility of re-uniting the bones of the pelvis after they have once been separated, our author has the following observations:

“When the connection of the bones of the pelvis has either been impaired or destroyed, it is probable that a confirmation or re-union may take place by a restoration of the original mode, by a callus, or by ankylosis. But it is likewise possible that the bones may remain in a state of separation, and an articulation be formed by the ends of each bone, at the symphysis of the ossa pubis, and at the junction of the ossa innominata with the os sacrum.” Of this last the doctor has seen one instance in a dead body, and has had reason to suspect the existence of it in some living persons. In the lower degrees of imperfection, the former method of union probably takes place; as the complaints made by women of pain and weakness, after delivery, generally go off before their month of confinement is elapsed; but when they continue for a longer time, the best method is to enjoin the patient rest, and an horizontal posture. In an increased degree of the complaint, where the health of the patient is affected, a longer time will be required for the recovery; but should the injury be too great to admit of the restoration of the original

mode of union, a much longer time will be requisite for the formation of a callus, if this ever takes place except as a previous step to an anchylosis. This last has been observed frequently to take place at the junction of the ossa innominata with the sacrum, but never at the symphysis of the pubes. In this case little can be expected, excepting from such remedies as tend to restore the constitution to its pristine vigour; and in the first case above related, the only thing from which the patient seemed to obtain relief was the cold-bath. She was likewise much assisted by the use of a swath, or broad belt, made of soft leather, quilted, and buckled with such firmness over the lower part of the body, as to lessen, if not prevent, the motion of the bones; and this was kept in its situation by a bandage passed between the legs, from the hind to the fore part of the belt. But when a joint is formed between the separated surfaces of the bones, all hope of recovering the patient to her former health may be given up. The only thing which can then be done for her relief must be by the use of a belt, or some similar contrivance, to substitute, as much as possible, artificial firmness, instead of natural. Dr. Denman saw one case in which he suspected this to have happened, and in which the life of the patient was truly miserable. He is of opinion, however, that it very rarely occurs; having been informed of another person, who, after eight years' confinement to her bed, in consequence of the separation of the bones in the time of labour, was at last restored to the perfect use of her inferior extremities. Instances also, though rare, have occurred, in which women, after labours, have suffered much pain in the region of the sacrum, and totally lost the power of moving their inferior extremities. This has been supposed a paralytic affection, and they are said to be bed-ridden; but as these patients have generally been restored, though after a very long confinement, our author thinks it reasonable to suppose that their infirmity had been occasioned by a separation of the bones, which at different periods after the accident, according to the degree of their separation, had recovered their former connection and strength.

SECT. II. *Of the FEMALE ORGANS of GENERATION.*

Anatomical writers usually divide the female organs of generation into *external* and *internal*. In the first division they include the *mons veneris*, *labia pudendi*, *perinæum*, *clitoris*, *nymphæ*, and *caruncule myrtiformes*; and in the latter, the *vagina*, with the *uterus* and its appendages.

The *mons veneris*, which is placed on the upper part of the symphysis pubis, is internally composed of adipose membrane, which makes it soft and prominent: it divides into two parts called

labia pudendi, which descending towards the rectum, from which they are divided by the perinæum, form what is called the *fourchette*. The perinæum is that fleshy space which extends about an inch and a half from the *fourchette* to the anus, and from thence about two inches to the coccyx.

The *labia pudendi* being separated, we observe a fulcus called *fossa magna*; in the upper part of which is placed the clitoris, a small round spongy body, in some measure resembling the male penis, but impervious, composed of two *corpora cavernosa* arising from the tuberosities of the ossa ischii; furnished with two pair of muscles, the *erectores clitoridis*, and the *sphincter vaginæ**, and terminating in a *glans* which is covered with its prepuce. From the lower part, on each side of the fossa, pass the *nymphæ*, two membranous and spongy folds which seem destined for useful purposes in parturition, by tending to enlarge the volume of the vagina as the child's head passes through it. Between these, about the middle of the fossa magna, we perceive the orifice of the *vagina* or *os externum*, closed by folds and wrinkles; and about half an inch above this, and about an inch below the clitoris, appears the *meatus urinarius* or orifice of the *urethra*, much shorter, though somewhat larger, than in men, with a little prominence at its lower edge, which facilitates the introduction of the catheter.

In children the orifice of the vagina is found partly closed up by a thin membrane called *hymen*; the form of which is different in different subjects, being in some shaped like a crescent, and in others of a circular form. In general, it is sufficiently open to admit the passage of the menses if it exists at the time of their appearance; but instances are related of its having been found perfectly closed, in which case it is to be divided longitudinally. When this membrane is ruptured by the venereal congress, or any other causes, it recedes and forms (it is thought) the *carunculæ myrtiformes*, which are sometimes totally effaced in women who have had many children.

The *vagina*, situated between the urethra and the rectum, is composed of two membranes, one of which is muscular, and the other a continuation of that which covers the fossa magna, surrounded with a spongy cellular substance. It terminates in the uterus about half an inch above the os tincæ, and is wider and shorter in women who have had children than in virgins.

All these parts are plentifully supplied with blood-vessels and nerves. Around the *nymphæ*, there are sebaceous follicles which pour out a fluid to lubricate the inner surface of the vagina; and the *meatus urinarius*, like the urethra in the male subject, is con-

* Although, in conformity to the generality of writers, the clitoris is here described as having two pair of muscles, the *erectores* alone seem strictly to belong to it; the *sphincter vaginæ* having no connection with the clitoris.

stantly moistened by a secreted mucus, which defends it against the acrimony of the urine.

The *uterus* is a hollow viscus, situated in the hypogastric region between the rectum and the bladder. It is destined to receive the first rudiments of the fœtus, and to assist in the development of all its parts till it arrives at a state of perfection and is fitted to enter into the world, at the time appointed by the wise Author of nature. The uterus in its unimpregnated state, resembles in shape a pear, somewhat flattened; with its *fundus* or bottom-part turned towards the abdomen, and its *cervix* or neck surrounded by the vagina. The entrance into its cavity forms a little protuberance, which has been compared to the mouth of a tench, and is called *os tinca*. The substance of the uterus, which is of a considerable thickness, appears to be composed of many glands interwoven with small ligamentous fibres, small branches of nerves, some lymphatics, and with arteries and veins innumerable. Its nerves are chiefly derived from the intercostal, and its arteries and veins from the hypogastric and hæmorrhoidal. The membrane which lines its cervix, is a continuation of the inner membrane of the vagina; but the outer surface of the body of the uterus is covered with the peritonæum, which is reflected over it, and descends from thence to the intestinum rectum. This duplication of the peritonæum, by passing off from the sides of the uterus to the sides of the pelvis, is there firmly connected, and forms what are called *ligamenta uteri lata*; which serve not only to support the uterus, but to convey nerves and blood-vessels to it.

The *ligamenta uteri rotunda* arise from the sides of the fundus uteri, and passing along within the fore part of the ligamenta lata, descend through the abdominal rings, and terminate in the substance of the mons veneris. The substance of these ligaments is vascular: and although both they and the ligamenta lata admit the uterus, in the virgin state, to move only about an inch up and down; yet in the course of pregnancy, they admit of considerable distension, and after parturition return nearly to their original state with surprising quickness.

On each side of the inner surface of the uterus, in the angle near the fundus, a small orifice is to be discovered, which is the beginning of one of the *tubæ fallopianæ*. Each of these tubes, which are two in number, passing through the substance of the uterus, is extended along the broad ligaments, till it reaches the edge of the pelvis, from whence it reflects back; and turning over behind the ligaments, about an inch of its extremity is seen hanging loose in the pelvis, near the ovarium. These extremities, having a jagged appearance, are called *fimbriæ* or *mosus diaboli*. Each tuba fallopiana is usually about three inches long.

Their cavities are at first very small, but become gradually larger, like a trumpet, as they approach the fimbriæ.

Near the fimbriæ of each *tuba fallopiana*, about an inch from the uterus, is situated an oval body called *ovarium*, of about half the size of the male testicle. Each of these *ovaria* is covered by a production of the peritonæum, and hangs loose in the pelvis. They are of a flat and angular form; and appear to be composed of a white and cellular substance, in which we are able to discover several minute vesicles filled with a coagulated lymph, of an uncertain number, but not often exceeding twelve in each ovary. In the female of riper years, these vesicles become exceedingly turgid; and a kind of yellow coagulum is gradually formed within one of them, which increases till its coat disappears; and it then changes into an hemispherical body, called *corpus luteum*, which resembles a bunch of currants, and is described as being hollow, and containing within its cavity the very minute membranes or eggs, each of which may become the seat of a fœtus. In conception, one of these mature ova is supposed to be impregnated with the male semen, and to be squeezed out of its nidus into the fallopian tube; and Baron Haller observes, that the number of scars or fissures in the ovarium constantly corresponds with the number of fœtuses excluded by the mother.

CHAP. II. OF IMPREGNATION. ,

AS it is in human subjects that the gradual process of generation has been principally enquired into, and the structure and office of the organs subservient thereto chiefly examined; what the latest naturalists and anatomists have settled with regard to it is reserved for this chapter.

The process of generation, so far as the male contributes to it, is as follows:—The penis being erected by an affusion of blood; the glands, at the same time, tumefied; and the nervous papillæ in the glands much rubbed and highly excited, in coitu; an ejaculatory contraction follows, by which the seed is pressed out of the seminal vesicles, and expelled with some considerable force.

The process of generation on the part of the female is thus: The clitoris being erected after the like manner as the penis in man, and the neighbouring parts all distended with blood, they more adequately embrace the penis in coitu, and, by the intumescence, press out a liquor from the glands about the neck of the womb, to facilitate the passage of the penis. At the same time, the fibres of the womb, contracting, open its mouth (which at other times is extremely close) for the reception of the finer part of the semen; and this being conveyed thither with some impetus, is retained in the uterus by the convulsive restriction of the

inner membrane thereof, and thus prepared to impregnate the ovum.

During the act of coition, the fallopian tubes growing stiff, embrace the ovaries with their strong muscular edges like fingers, and compress them, till their mouths being dilated and expanded by this membrane, force the egg, now ripened, into their cavities, and gradually drive it forwards by their vermicular motion, till at last they protrude it into the cavity of the womb to meet the semen of the man.

Others rather suppose the seed conveyed from the uterus, through the fallopian tubes, to the ova; and thus take the impregnation to be first performed in the ovaries, or even in the tubæ themselves, the ova and the seed meeting by the way.

Others again, considering the closeness of the mouth of the womb, and the thickness of the membranes of the ovaries, judge it impossible for the seed to pass that way; and therefore suppose it is taken up by the veins which open into the cavity of the vagina, or even the womb, where circulating, it ferments with the mass of blood; and hence all the symptoms which appear in conception. At length it enters and impregnates the egg by the small twigs of arteries which are upon its membranes. This fermentation swelling the membranes of the tubæ, they open their cavity, and make room for the ova to pass into the womb.

The egg impregnated, and close shut up in the womb, swims in the humours thereof; which, growing more and more subtil, enter the parent pores found on one side the ovum, and soon distend, fill, and augment it; and there, being still further attenuated, nourish the embryo, thicken and expand the membranes of the ovum, especially in that part by which it grew to the ovary; and thus form the rudiments of a placenta.

The same causes still continuing, and the pores both of the placenta and the membranes being enlarged, the egg begins to fill the cavity of the womb, and at length its stem or calix grows to the concave surface thereof; and thus is the navel-string formed.

This system is founded on the supposition of animalcula in the male seed. They who set them aside as unconcerned in generation, account for it thus: The seed containing volatile, oily, and saline parts, as appears from the fetid smell, oleaginous substance, &c. being lodged in the womb, and there further digested and exalted, grows yet more volatile, fetid, pungent, and stimulating; and thus, adding to the heat occasioned by coition, velleitates the nervous fibres of that part, and occasions a fermentation and gentle inflammation, and by that means an extraordinary flux of humours to that and the adjacent parts.

By this means the tubæ become rigid, and fit to grasp the ovaries, which are also heated by the effluvia of the semen and the

warmth of the parts surrounding. Upon this there is a greater flux into the ovaries; till at length the ova, some of them at least, by such greater supply of nourishment, increase in bulk; and those grasped by the edges of the tubæ will be kept warmest, and the greatest flux be made thereto, they will soonest be ripened, fall off, and be received by the tubæ, and conveyed to the womb; where growing after the manner of the seeds of plants, the placenta at length takes hold of, and adheres to the uterus; from which time the embryo begins to be nourished after a different manner.

Thus we see, in tracing the process of generation, theorists have ranged themselves on three distinct grounds, each of which has had its ardent advocates, and as strenuous opponents. One gives to woman alone the humble office of affording a proper nidus for the due evolution of the fœtus, which, according to this theory, already exists in the male semen, and requires only a fruitful habitation. Another directly reverses this position; he puts the female in possession of every requisite for the formation of a new animal, and considers the male a mere stimulating engine to call the latent powers of the female into life. The third gives not pre-eminence to either sex, but with the mutual embrace produces a mutual effect; he regards both the male and female as most essentially concurring in the work of re-production, each affording a something, which, uniting under proper circumstances, becomes the proximate cause of impregnation.

Although every existing theory on the re-production of animals is reducible in its principle to one of the above grounds, the warm and fertile imagination of speculative minds has led to almost innumerable modifications, each theorist assuming his fundamental position, and forming his deductions in manner and respect to the direction of his fancy.

Mr. Pulley, in an essay on the proximate cause of animal impregnation, after combating the opinion that *corpora lutea* are decisive proofs of impregnation, says, "What a train of evidence, embracing facts most positive and indisputable, does that author call up against him, who maintains that the male semen alone possesses the power of stimulating the os uteri and adjoining parts, and that by sympathy generation is effected! When a negro man embraces a white woman, why is it that the offspring is a mulatto? When a male ass copulates with a mare, why does the mule partake of the nature of both? And when dogs and bitches of different species have intercourse, why in appearance do the mongrel whelps claim affinity to both parents? Again, it is a self-evident truth, that a child may inherit the disposition to the constitutional diseases of either parent; and shall it be said, that it is in the power of *sympathy* to hand down to posterity the contaminated habit of the father? Besides, if the semen

be allotted merely to stimulate the uterine system, it would seem a totally unnecessary secretion; for we find that the sexual act is not wanting, even to effect those changes, which the semen, by this theory, is only permitted to perform."

A new idea of generation is thrown out by Dr. Couper, which, however, he does not appear to have by any means established. He alleges, that the semen is absorbed by the vagina, which is peculiarly constructed for this very purpose; that it is thus thrown into the general circulation, impregnating the whole mass; the result of which, like other functions for other ends, is determined to the ovaria. This he considers probable, from the powerful effects of the semen resorbed by the male; from its effects on the female when impregnation does not take place, as well as when it has taken place; and from a multitude of appearances and circumstances.

In the Medical Journal, Mr. Saumarez controverts the doctrines of Animal Impregnation, "evidently written for the purpose of confirming two opinions, which have lately been entertained on the subject. The one is, that the palpable application of semen to the ovarium does not take place;—and secondly, that the existence of corpora lutea constitutes the true test of animal impregnation.

"In order to prove the error of the first opinion," continues he, "I shall trace the various modes by which we know fecundation is accomplished in some orders of the more simple systems, as it will enable us to understand the manner in which it is effected in those of a more complicated structure. Such is the regularity which vegetables, and the lower orders of animals, display in the actions they perform, that we are necessarily led to conclude, that those actions are governed by fixed and general principles, which they cannot either suppress or prevent; there is an appointed period of growth for the different organs in general of each, and an appointed season for the evolutions of particular organs, and when the disposition for their respective actions begins and ends. The alteration which vegetables periodically undergo, from a torpid to an active state, until fructification is accomplished, is obvious to every observer. In many vegetables the propagation of the species is not confined to one, but extends to several different modes, viz. by branches and buds, by suckers, by leaves, and by seed; when the propagation of the species is the consequence of seed, the organ by which it is produced is found to be resident, for the most part, either in the same branch, or enclosed within the same calyx. There arises either directly from the summit, or from the sides of the germen or seed-bud, an erect column called pistillum, the base of which has received the appellation of style, and which is terminated by the stigma, or crown of the pistil, and is generally found with a downy covering of a moist quality:

it is this organ which Linnæus supposed constitutes the female part of generation. External to the pistil we find the stamina to be situated; the base immediately arises from the plant, and proceeding in a thread-like form is called *filamentum*, which is terminated by the *anthera*; the anthera generally consists of two cavities, which contain a fine farinaceous powder, analogous to the *femen masculinum*, called pollen; these cavities ultimately burst, so that the pollen which is shed from the anthera, or summit of the stamen, is received by the stigma, or summit of the pistillum, so that an union of both takes place. These are the means which vegetables employ to celebrate their connubium, or marriage, and the mode by which it is consummated. It appears to me impossible to do away the crowd of facts which prove the power which the pollen contains, and the faculty it has of imparting the character of the system from whence it is produced, to the female system by which it is received; the various hybrid productions that are the consequent result establish the fact beyond controversy.

“ If we proceed from vegetables to the lower order of animals, we find that although the mode of propagation may be limited with respect to them, that it is far superior to what the higher classes possess. The sexes are also not only particularly distinguished, but there is evidently sexual intercourse between them: in them the mode of propagation is limited to one, requiring the union of two subjects before it can be accomplished. The first order of these animals is called hermaphrodite, when both sexes, male and female, are found existing in the same system—the snail, the slug, the leech, &c. belong to this class. Although hermaphrodite animals possess both sexes, it does not appear that the different sexes of the same system ever copulate together; the union of two separate systems is necessary to call forth the combined actions of the four sexual organs at one and the same time.

“ When we go to examine the generating organs of different animals, we shall find that the evolution they undergo at particular seasons is great and striking. The evolution of those organs is less evident in the higher than it is found in the lower classes; less evident in the human species than in quadrupeds; in quadrupeds than it is in birds, in the amphibia, in fish, or in vegetables. The direct evidence we possess that the semen of the male is applied in a palpable form to the ova of the female in the latter system, leads us to make an analogical conclusion, that it takes place also in the former, although the manner is different, arising from the difference in the nature of their organisation; I shall therefore proceed to examine the mode by which fecundation in them is accomplished.

“ The organs of generation in fish consist of two testes, and

two ovaria: the system that possesses the one is called the male fish; the other is distinguished by the appellation of female. If either are examined in the winter season, during their torpid state, both these organs are found flaccid and empty; on the contrary, when viewed in the spring and summer, when the evolution in the system in general has taken place, these parts in particular appear distended and full. The testes, which are distinguished by the whiteness of their colour, and softness of their texture, have received the appellation of roe, and are then full of a white fluid called semen. The female organs are called ovaria, known by the name of hard roe, and are completely full of ova.

“ When these parts have attained the full perfection of their evolution, they are expelled from each system; the semen of the male unites with the ova of the female, and fecundation ensues, without sexual intercourse between both. It is with a view of accomplishing this end that fish in general go in shoals; that particular classes of fish have particular latitudes for their habitations, and particular situations to which they resort at particular seasons, in order that the spawn which they shed may immediately combine together, an union takes place between the semen and the ova, without any intercourse between the parents, and fecundation ensues to an extent far surpassing any example we witness in the most complicated frame.

“ In the amphibia, and birds, the same enlargement in the fecundating organs is equally apparent. The animals that belong to the former class consist especially of the frog, the toad, the turtle, the lizard, and all of the snake kind. I shall take the frog as an example, because the changes the male and female undergo are more striking than in any other. We have constant opportunities of beholding the palpable application of the male semen to the female ova.

“ The male frog has a testis situated in the loins, having an excretory duct called *vas deferens*, communicating with a *vesicula seminalis*, which finally terminates at the *anus*. The female frog has a number of small ova, attached to a membrane, which is connected to the loins somewhat similar to the male testis. There is an oviduct terminating in an uterus, to which it is attached. The ovarium and the testes are remarkably small during the autumnal and winter months; but as the winter cold departs, and the vernal warmth succeeds, the testes and the ova become gradually developed, and ultimately assume a considerable size; so that when these animals are examined in the spring, the appearance they display is totally different from what they manifested in the winter. Instead of being thin and flat, languid and torpid, they are found, lively, and active. The male is plump and fat, the female distended, and swelled to a considerable size: and finally, instead of subsisting in a state of separation and divorce,

they are found embracing each other, and consummating their union. Animals that are in this state are said to have the *æstrum* upon them. The male climbs upon the back of the female, passes his arms over her shoulders, and adheres to the surface of her body in such a manner that the vas deferens, which terminates at the anus, is placed exactly above the vagina; this is the condition in which they are found, and which they preserve for a fortnight, until the final cause of their union is accomplished: the final cause of their union in the female consists in the expulsion of the ova which the ovarium contains; in the male it consists in the discharge of the semen from the testis, through the medium of the vas deferens, upon the ova, so that they become sprinkled by it in proportion as they are repelled, constituting the mode by which fœcundation is accomplished.

“The mode of propagation in this prolific system, although very simple, is even more complicated than it is in fish. In fish there exists a separation between the male and female, but an union only between the semen and ova from without; in frogs there is an union between the male and female in general, before fœcundation can be accomplished.

“The higher species of the amphibious class are all of the snake kind: in them we find a considerable degree of difference which subsists; instead of fœcundation taking place without the use of sexual organs, fœcundation can be accomplished by means of sexual organs alone. The male has two *testes*, with two *vasa deferentia*, which terminate not at the anus, as in the frog, but with two distinct penes, or male sexual organs, the surfaces of which are covered over with numerous papillæ. The female has two sets of ovaria, which extend from the middle of the animal's body to its posterior extremity, containing an abundant quantity of ova; there are two Fallopian tubes, or oviducts, which receive the ova from the ovaria, and convey them to the uterus, from whence they are expelled. Although the mode of fœcundation is different in these higher systems, the end is evidently the same as in the inferior; the semen, instead of uniting with the ova out of the body, is conveyed within by the agency of the sexual organs of the male, through the medium of the Fallopian tubes, to the ovaria of the female, in order that it may unite with the ova which are sufficiently evolved, that fœcundation may be accomplished. That the Fallopian tubes possess the power of conveying the semen to the ovaria, is evidently proved from the strong and active peristaltic motion they display, and which appears evidently designed in the first instance to convey the semen to the fimbriæ; while the fimbriæ, which before only covered a small portion of the ovaria, are gradually expanding themselves, so as to grasp and completely enclose the ovaria. It is by the wonderful reciprocity of action at this time in these various parts, that the semen is applied to the surface of the ova-

ria, and the ova which have evolved and enlarged become foccundated by the union of the semen with them.*

“ On examining a doe rabbit, which I killed two hours and a half after she had been admitted to the male, independent of the inward vascularity of the Fallopian tubes, and strong peristaltic motion, of the progressive attachment of the fimbriæ to the ovaria, and of the protruding condition of several ova in them, I do declare, that I discovered a fluid in colour and consistency exactly similar to æther, and which spread itself as æther is wont to do, when rubbed between the fingers, supported by that portion of the expanded fimbriæ which had not yet grasped the ovarium. I firmly believe that this was the fluid destined to impregnate the ova. I do not, however, wish to dwell too long on one solitary fact, when the analogy is so strong and so general, that it cannot be refuted. The union of the semen to the ova is proved directly in the whole inferior order of animated beings I have examined—in the amphibia, in fish, and in vegetables; why then should it be denied to the higher classes? For no other reason than the mere supposition that ‘ it is absorbed from the vagina, and conveyed to the general system, where, by its peculiar stimulus, it produces the changes which happen *after* impregnation in the uterus; its appendages and the breasts perfecting what the stimulus of coition had begun.’ This is the mere *ipse dixit* of certain writers, unsupported by proof, refuted by analogy, arising from ignorance of the true end for which the act of coition is designed.

“ In proportion as we ascend in the chain of animated existence, we find a considerable abatement in the effects which œstrum alone produces; the power and disposition to action in the generating organs progressively diminishes, requiring causes of a more active nature than we behold in the lower orders. The power which the female of oviparous animals possesses of evolving the ova she contains, when the season for foccundation is present, does not extend to the animals of a higher class, by virtue of that power alone; a necessity absolutely exists that in them sexual union should take place, not only for the proper secretion of semen, but for the evolution of the ova. The excitement which the ovaria sustain during, and in consequence of that act, constitutes the only means by which the ova can evolve, and become separated from the capsules in which they are enclosed; in the lower orders, a total separation of the semen and of the ova ensues, although no sexual unions have happened.

“ The fact is proved by the pollen of vegetables, by the semen and ova of fish, and of the amphibia which I already stated. Being solicitous to see what change the ovaria underwent by the

* The author has given in detail all the experiments that illustrate the subject of animal foccundation in his *System of Physiology* lately published.

power of œstrum alone, I took a female rabbit that had the œstrum upon her, and had her fed upon oats, beans, cellery, and other kinds of food, which the rabbit-keeper told me had the strongest tendency to increase that state. I had her placed before a buck; they were allowed to caress each other whilst absolute union was prevented; I pursued this plan for a week, and at the time that the œstrum was at its highest pitch, she was killed. On examining the different organs subservient to the process of generation, I found them very different from what they are in a common state. The external membrane by which the vagina is lined was swelled and distended, and had acquired a black mulberry colour; on examining the uterus, I found its colour had undergone an equal alteration; it was of a purple hue, evidently arising from a præternatural quantity of blood that had been determined upon it. There was a large vessel running up the middle of both Fallopian tubes, enlarged to a considerable size, and completely distended with blood. The tubes before their termination at the fimbriæ were torquated and distorted in an extraordinary manner, having also a strong peristaltic motion; after running a short way above the ovaria, they bent downwards, terminated by a sinuated expansion above the ovaria, a considerable portion of which they involved and enclosed. The ovaria appeared to have undergone a considerable degree of alteration also; the ova which the ovaria contained were swelled, and evidently more distinct than is usual, resembling in some degree the seed resident in the pericarpium of a ripe grape. Although it appeared very clear that some action had taken place in these parts, there was nothing like a separation from the capsule, as we observe in the ovarium of the hen, from the effect of œstrum alone (without sexual union). Œstrum alone therefore produces an evolution of the ova to a limited degree; it however appears from some experiments that were made by Mr. Craikshank and Dr. Haighton, where one of the Fallopian tubes of a rabbit had been divided and obliterated, and the other left perfect and entire, and sexual union allowed, that the increased excitement which the female had undergone was sufficient to evolve the ova completely, and separate them from the ovaria.

“ Although there were ova separated from the ovarium in the mutilated as in the perfect side, there was this grand and striking difference between both. In the perfect side where the semen could have access to the ovarium, there were fœtuses found as usual; on the mutilated side quite otherwise, there was not the least trace of a single fœtus to be discovered. Although there was not a single fœtus to be discovered in the mutilated side, both ovaria displayed the same appearance; the ova which the ovaria contained, I say, became equally evolved, the external tunica in both had burst, and several of the ova in both were discharged. The vesicles from whence the ova were discharged

were consequently left hollow, their parieties or sides gradually thickened; and these thickened calyces constitute what anatomists have called *corpora lutea*. The existence, therefore, of *corpora lutea* is a proof that the sexual act has been so far perfect as to produce this action within the vesicles; and that although it can take place without the application of semen to the ovaria, fecundation is absolutely prevented without its palpable application. The conclusion therefore presses itself upon the mind with force irresistible, that, *the existence of corpora lutea is not the true and infallible test of animal impregnation*. It is not more the test of animal impregnation, than when we behold unfecundated eggs expelled from the female of oviparous animals in general; in them, the separated part of the membrane is left jagged, and is exactly analogous to the corpus luteum of the higher order of animals.

"If male and female fish, of the same species, are separated from each other, although the spawn will be shed, fecundation will be effectually prevented. If birds that usually copulate together, are cooped up separate, although the eggs will evolve and be deposited, they will be totally different from what we find when the sexual act has been accomplished: in the one case, they become putrid without being prolific; in the other, they become prolific without being putrid. Although the shell of a periwinkle and the hide of a buffalo are different in their structure, they are destined to the same use, serving to protect from the operation of external causes the internal organisation of the animal to which it is subservient. We have no difficulty in admitting, that the cornuated uterus of a rabbit is destined for the same purpose as the oval uterus of the human species, the oviduct of a hen for the same purpose as the Fallopian tube of a woman; must it not then be allowed, that the ovaria of the one are in nature the same as the ovaria of the other? and that since fecundation cannot take place without the application of semen to the ovaria, although *corpora lutea* do exist, that the presence of these is not the test by which we are to judge that fecundation has actually taken place? The only certain test we can have that animal fecundation has taken place, is by the actual existence of one or more fœtuses. It is not an effect produced from the energy of a power resident in one system or in one sex, but in two systems of different sexes; not in the male or female individually, but from the united action of both male and female together.

"From the various facts I have stated, I think we are warranted in concluding,

"1st. That the act of sexual intercourse is the immediate cause, by the power of which the several organs in the male and female are made to undergo their separate, although correspondent changes.

"2d. In the male the specific power of the testes is excited,

and semen in consequence produced; which semen is the immediate agent that contains the characteristic properties of the masculine system, and is conveyed from the vagina of the female through the uterus, and received by the Fallopian tubes. In the female, the increased vascularity not only of the vagina but of the uterus and tubes, proves the capacity these parts possess of sympathising with the sexual organs of the male.

“ 3d. That the Fallopian tubes constitute the media of communication to convey the semen from the uterus to the ovaria, which they do by means of the peristaltic power which these tubes so eminently possess; that in proportion to the evolution which the ova sustain (in the vesicles of the ovaria), a correspondent change takes place in the fimbriæ; that the fimbriæ progressively grasp the ovaria, and immediately apply the semen to the ova; that by the union of both, fecundation takes place, and which constitutes the proximate cause of animal impregnation.

“ In order to put so difficult a subject in as clear a point of view as I am capable, I shall state it in different words, viz. the different changes which the several parts in the male and female undergo, all tend to one end, namely, the immediate contact of the fimbriated extremity of the Fallopian tubes to the surface of the ovaria; that an union might take place between the fluid which the fimbriæ convey, and the ova (of a mucus-like appearance) which the vesicles discharge; that it is the semen which communicates the characteristic properties of the male; and the Fallopian tubes, the medium by which it is conveyed, in the same manner as the fluid which the vesicles discharge, contain and convey the characteristic properties of the female;—that the fimbriated extremity of the Fallopian tubes, is the immediate seat where this effect takes place; that the union of both constitutes *conception*, or the immediate reception of a *living principle*, in which the source and power of action essentially resides, and which participates the nature of both parents, by the combined action of whom it was produced*.

“ It is not the farinaceous matter of which a seed is composed, the animal gluten with which an egg is filled, or the atom of

* That fecundation takes place either at the extremity of the Fallopian tube, or in the very calyx itself, which is formed by the action of the vesicle after the sexual act, is not only very probable, from the appearance which the parts display, but the probability is greatly increased from the adventitious circumstances which sometimes happen, when a fœtus is found resident either in the ovarium, or attached to the fimbriæ, or lodged within the body of the tube itself; or, what perhaps less rarely happens, when the embryo drops in either of those situations, and becomes attached to some part of the abdominal cavity; these are called extra-uterine cases in general, each case receiving the particular denomination from the particular part in which it is found, as, abdominal, ovarian, fimbrial, and Fallopian.

mucus in which the primordia of the embryo are contained, which constitutes the power by the energy of which organisation is elaborated, and action ultimately produced; each of these bodies is a chaos in all its parts, a *rudis indigestaque moles*; the mere matter of which they are composed, when deprived of this living principle, undergoes the usual changes of decomposition and decay, by the processes of putrefaction and fermentation, and yields nearly the same materials by chemical analysis.

“It is the living principle which the seed of vegetables and the fecundated ova of animals contains, that constitutes the architect by which the machine is erected; it is the base on which the whole stands; it is the bond of its elementary parts, the cement that unites them in one whole; it is the efficient and primary cause from whence the individuality of every system arises, and in which the form it assumes essentially resides; it constitutes the power by which the human species differs from the brute, the brute from the vegetable, and the vegetable itself from formless and inanimate matter; it is the power by which formless and inanimate matter is converted into organs living and active, so that the various species of food which the vital power receives, are nothing more than the raw materials applied to it; it is the manufacturer that converts these materials, without power or intelligence, into different systems, through which the acorn becomes evolved into an oak, the infant foliage expanded into leaves, and the final cause of vegetable existence attained; it is by virtue of a power in essence the same, though in character different, that the embryo of animals becomes evolved out of matter in kind the same, and models a system consisting of organs and of fluids in their kind and operation totally different; and, finally, it is through the participation of this living power which the organs and fluids have received, that they become the instruments or means by which it accomplishes the final cause of its existence. Life may therefore be defined, *the principle (i. e. the efficient and primary cause) by the energy of which various species of matter are converted to one kind, under one system, so that the matter thus converted possesses the power of resisting the operation of external causes, and of preserving itself from putrefaction and decay.* It is to this power, I say, by the energy of which every living system is protected and preserved from decomposition and decay, and by which the different substances it receives are assimilated and changed, that I attach the idea of life. The *Vis Medicatrix Naturæ* of Stahl, the *Vis Vitæ* of Haller, the *Nisus Formativus* of Blumenbach, the Living Principle of Mr. Hunter, the Excitability of Dr. Brown, and, finally, “Form,” by that excellent philosopher, Mr. Harris. The principle of life, therefore, as a cause, may be contemplated in the abstract, as separate and distinct from the matter into which it is received, and through which its actions are produced; it is by the evolution of the

living principle which animated beings possess, from a state of *dormant capacity* into energy and action, that they are capable of converting to their own nature the various substances on which they feed, and of making them assume the organisation and form of the system to which they are applied. Bread of the same precise quality, cut from the same loaf, or water drawn from the same brook, given to a man and to a dog, after having been digested by the stomach of both, will contribute to the particular organisation of each respective system. We behold a multitude of vegetables placed in the same medium, nourished and fed by water and air, in kind the same, and yet assuming an organisation and form totally different.

“ If the power of organisation and of life therefore resided in the food, every vegetable and every animal that fed upon the same materials would be fashioned and modelled alike; for in all chemical changes the same cause uniformly produces the same effect. If it depended on a chemical cause, the changes which the food sustained would be regular and constant, the chyle produced, instead of being the same, would be generally different; it would vary in its properties according to the peculiar nature of the substances out of which it was formed; and, finally, if it depended on the mutual action of different parts of the food upon each other, independent of the digestive power of the organ itself, the change it sustained, like other chemical changes, would be constant and definite, and not liable to the remission we witness during the process of digestion; it is therefore lawful, and we are from necessity led to conclude, that the commutation food obtains in the living system, is a vital and not a chemical act; and that the efficient cause of this commutation does not arise from any active property which the food contains, but is owing to the vital power of the system in which it is received, and by which the new arrangement of its parts is formed; it is with a view of destroying these sensible qualities which different living systems receive, that their assimilating organs are essentially designed; they are designed to reduce substances of different kinds to one, that this one substance may be in harmony with the system, that it may be fitted for being acted upon, and converted by the specific power of various organs into different shapes; the aptitude, therefore, of the matter which every living system receives, can only arise out of its weakness or total privation. It is in this destitute state that we say matter is imbecile and inert, a mere *tabula rasa*, that has the aptitude of being acted upon without the power of resisting action; that has the power of being changed without the power of changing; of being modelled without the power of modelling, &c. It is thus that we can appreciate the dire ignorance of those materialists, who suppose that matter can convert *itself* into different organs, in fabric most deli-

cate, in action most extensive, in form most diversified; that by the congregation of these organs a whole system is constituted; that the result of this organisation is life, and out of this organised life, action and motion are produced, so that matter is the efficient cause, and life the effect only.

“Equally absurd is the opinion of those pure defecated philosophers who suppose that the oxygenous matter which vegetables in the day are constantly discharging from the whole external surface of their foliage as urinous and dead, constitutes the principle of life, in which all power essentially resides; the immediate and proximate cause of irritability in man!”

With still greater reason are we to deplore the Brunonian system, which proclaims life to be a *forced*, not an original state; that makes life the effect of action, instead of action the effect of life; that makes life to come out of the body instead of residing within it! *that makes this action, or excitement, in which the true cause of life consists, the effect of the exciting powers acting on the excitability!*

CHAP. III. OF PREGNANCY.

AT the time of conception, and for some time after, the parts which form the small fœtus are so blended together, that one cannot be distinguished from another. The whole mass is then called an *ovum*. This ovum consists of four membranes; the placenta, or after-birth; the funis umbilicalis, or navel-string, leading to the child; and the surrounding watery fluid in which it floats. Before the child acquires a distinct and regular form, it is called *embryo*, and afterwards retains the name of *fœtus* till its birth. The increase and nutrition of the fœtus depend on its connection with the uterus, and will be explained elsewhere.

During the progress of impregnation the uterus suffers considerable changes; but, though it enlarges as the ovum increases, yet, in regard to its contents, it is never full; for, in early gestation, these are confined to the fundus only: and though the capacity of the uterus increases, yet it is not mechanically stretched, for the thickness of its sides do not diminish; there is a proportional increase of the quantity of fluids, and therefore pretty much the same thickness remains as before impregnation.

The gravid uterus is of different sizes in different women; and must vary according to the bulk of the fœtus and involucre. The situation will also vary according to the increase of its contents, and the position of the body. For the first two or three months, the cavity of the fundus is triangular, as before impregnation; but as the uterus stretches, it gradually acquires a more rounded form. In general, the uterus never rises directly upwards, but

inclines a little obliquely, most commonly to the right side; its position is never, however, so oblique as to prove the sole cause either of preventing or retarding delivery: its increase of bulk does not seem to arise merely from distention, but to depend on the same cause as the extension of the skin in a growing child. This is proved from some late instances of extra-uterine foetuses, where the uterus, though there were no contents, was nearly of the same size, from the additional quantity of nourishment transmitted, as if the ovum had been contained within its cavity.

The internal surface, which is generally pretty smooth, except where the placenta adheres, is lined with a tender efflorescence of the uterus, which, after delivery, appears as if torn, and is thrown off with the cleanings. This is the *membrana decidua* of Dr. Hunter.

Though the uterus, from the moment of conception, is gradually distended, by which considerable changes are occasioned, it is very difficult to judge of pregnancy from appearances in the early months. For the first three months the os tincæ feels smooth and even, and its orifice as small as in the virgin state. When any difference can be perceived, about the fourth or fifth month from the descent of the fundus through the pelvis, the tubercle or projecting part of the os tincæ, will seem larger, longer, and more expanded; but, after this period, it shortens, particularly at its fore-parts and sides, and its orifice or labia begin to separate, so as to have its conical appearance destroyed. The cervix, which in the early months is nearly shut, now begins to stretch and to be distended to the os tincæ; but during the whole term of utero-gestation, the mouth of the uterus is strongly cemented with aropy mucus, which lines it and the cervix, and begins to be discharged on the approach of labour. In the last week, when the cervix uteri is completely distended, the uterine orifice begins to form an elliptical tube, instead of a fissure, or to assume the appearance of a ring on a large globe; and often at this time, especially in pendulous bellies, disappears entirely, so as to be out of the reach of the finger in touching. Hence the os uteri is not in the direction of the axis of the womb, as has generally been supposed.

About the fourth, or between the fourth and fifth month, the fundus uteri begins to rise above the pubes or brim of the pelvis, and its cervix to be distended nearly one third. In the fifth month the belly swells like a ball, with the skin tense, the fundus about half way between the pubes and navel, and the neck one half distended. After the sixth month the greatest part of the cervix uteri dilates, so as to make almost one cavity with the fundus. In the seventh month the fundus advances as far as the umbilicus. In the eighth it reaches mid-way between the navel and scrobiculus cordis; and in the ninth to the scrobiculus itself, the neck then being entirely dis-

tended, which, with the os tincæ, become the weakest part of the uterus. Thus at full time the uterus occupies all the umbilical and hypogastric regions; its shape is almost pyriform, that is, more rounded above than below; and having a stricture on that part which is surrounded by the brim of the pelvis.

The appendages of the uterus suffer very little change during pregnancy, except the ligamenta lata, which diminish in breadth as the uterus enlarges, and at full time are almost entirely obliterated.

The most remarkable change happens in the ovarium. A cicatrix of a roundish figure and yellowish colour appears in this body, called by anatomists the *corpus luteum*. It is always to be found in one of the ovaria; and in cases of twins a corpus luteum often appears in both ovaria. It was formerly considered as the calyx ovi! but modern physiologists think it a gland, from whence the feminal fluid is ejected. In early gestation it is most conspicuous, when a cavity is observable, which afterwards collapses; no vessels appear at the centre of this cavity, which has the appearance of cicatrix, but all around that centre the substance is vascular.

During the progress of distention, the substance of the uterus becomes looser, of a softer texture, and more vascular than before conception; its veins, particularly in their diameters, being enlarged in such a manner as to get the name of *sinuses*; they observe a more direct course than the arteries, which run in a serpentine manner, anastomosing with one another, and through its whole substance, especially where the placenta adheres, where this vascular appearance is most conspicuous.

The arteries pass from the uterus through the decidua, and open into the substance of the placenta in a slanting direction. The veins also open into the placenta, and by injecting these veins from the uterus with wax, the whole spongy or cellular part of the placenta will be filled.

The muscular structure of the gravid uterus is extremely difficult to be shewn: in the wombs of women who die in labour, or soon after delivery, fibres running in various directions are observable more or less circular, that seem to arise from three distinct origins; viz. from the place where the placenta adheres, and from the aperture or orifice of each of the tubes; but it is almost impossible to demonstrate regular plans of fibres, continued any length without interruption.

CHAP. IV. OF SPURIOUS GRAVIDITY.

THE various diseases incident to the uterine system, and other morbid affections of the abdominal viscera, will frequently excite the appearance of utero-gestation. Complaints arising from

a simple obstruction are sometimes mistaken for those of breeding; when a tumor about the region of the uterus is also formed, and gradually becomes more and more bulky, the symptoms it occasions are so strongly marked, and the resemblance to pregnancy so very striking, that the ignorant patient is often deceived, and even the experienced physician imposed on.

Scirrhus, polypous, or sarcomatous tumors in or about the uterus or pelvis; dropy or ventosity of the uterus or tubes; steatoma or dropy of the ovaria; and vental conception; are the common causes of such fallacious appearances. In many of these cases the menses disappear; nausea, retchings, and other symptoms of breeding ensue; flatus in the bowels will be mistaken for the motion of the child; and in the advanced stages of the disease, from the pressure of the swelling on the adjacent parts, tumefaction and hardness of the mammæ supervene, and sometimes a viscid or serous fluid distils from the nipple; circumstances that strongly confirm the woman in her opinion, till time, or the dreadful consequences that often ensue, at last convince her of her fatal mistake.

Some of the diseases which in their incipient state are apt to be mistaken for pregnancy by the patient, will be treated of under the head of Female Diseases, in a subsequent part of this work.

False Conception.—*Mola.* Other kinds of spurious gravidity, less hazardous in their nature than any of the preceding, may also be classed under this head; diseases commonly known by the names of *false conception* and *mola*: the former of these is nothing more than the dissolution of the fœtus in the early months; the placenta is afterwards retained in the uterus, and from the addition of coagula, or in consequence of disease, is excluded in an indurated or enlarged state. When it remained for months or longer, and came off in the form of a fleshy or scirrhus-like mass, without having any cavity in the centre, it was formerly distinguished by the name of *mola*.

Mere coagula of blood, retained in the uterus after delivery, or after immoderate floodings at any period of life, and squeezed, by the pressure of the uterus, into a fibrous or compact form, constitute another species of mola, that more frequently occurs than any of the former. These, though they may assume the appearances of gravidity, are generally, however, expelled spontaneously, and are seldom followed with dangerous consequences.

CHAP. V. OF SUPERFŒTATION.

SOON after impregnation takes place, the cervix uteri becomes entirely shut up by means of a thick viscid gluten: the

internal cavity is also lined by the external membrane of the ovum, which attaches itself to the whole internal surface of the fundus uteri; the Fallopian tubes also become flaccid, and are, as gravidity advances, supposed to be removed at such a distance, that they cannot reach the ovaria to receive or convey another ovum into the uterus. For these, and other reasons, the doctrine of *superfætation* is now pretty generally exploded; a doctrine that seems to have arisen from the case of a double or triple conception, where, some time after their formation in utero, one fœtus has been expelled, and another has remained; or after the extinction of life at an early period, one or more may be still retained, and thrown off in a small and putrid state, after the birth of a full-grown child.

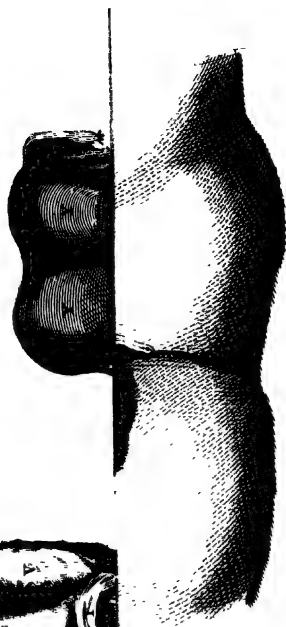
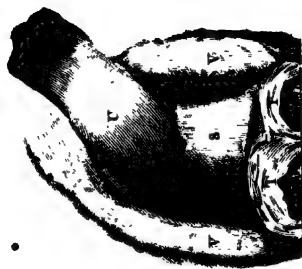
The uterus of brutes is divided into different cells; and their ova do not attach themselves to the uterus so early as in the human subject, but are supposed to receive their nourishment for some time by absorption. Hence the os uteri does not close immediately after conception; for a bitch will admit a variety of dogs while she is in season, and will bring forth puppies of these different species: thus it is common for a greyhound to have, in the same litter, one of the greyhound kind, a pointer, and a third or more different from both. This is another circumstance that has given rise to *superfætation* in the human subject, which can *only* happen when there is a double fet of parts, instances of which are very rare.

The following instance of a *double uterus* in the human subject, is given in the Memoirs of the Medical Society of London, vol. IV. by Mr. Pole.

“This anatomical phenomenon,” says he, “occurred to my observation by mere accident. Having delivered a patient of a child with a watery head, which died within a few minutes from the time of its birth, I begged leave of the parents to inspect the head by dissection, which was found to contain three half-pints of water; but this case being unconnected with the subject of the present description, I shall not enlarge further upon it. After inspecting the head, and sewing up the scalp, the body was replaced in the shell or coffin destined for its interment; but observing the abdomen remarkably contracted, it suggested the idea of examining the state of the intestines, in which there was no circumstance worthy of notice; my attention was soon called off to observe this extraordinary *lusus naturæ*, which has proved an ample reward for opening the abdominal cavity.

“This is an instance of a *complete double uterus and vagina*; one fallopian tube and ovarium were affixed laterally to the fundus of each uterus in the usual way. The fundi receded from each other so as to form a considerable depression between them, which was gradually lost as it advanced toward the cervix. That

Mr. Poles' case of a Double Uterus.



part where the ora tincæ were situated, was considerably larger than usual externally.

“ A septum of considerable thickness ran between the organs which formed two distinct and complete vaginae as well as uterine cavities : the septum became thin as it approached the ora externa, between which it formed a projection considerably anterior to the verge of the vaginae in other parts. Just below each os externum were two large lacunæ or blind pouches, in depth about the sixth of an inch ; and of sufficient diameter to admit the round end of a very large probe ; the mouths of these were naturally so distended by a firmness of structure, and so large as almost to persuade an observer that nature had hesitated in forming two other vaginae. The Fallopian tubes admitted the passage of quicksilver into their respective cavities freely.”

In Plate I. of this volume are Mr. Pole's representations of this singular case, of which the following is an explanation :—

Fig. I. *A general view of the parts.*

A. A. The two uteri. B. The cervixes of the uteri. C. Superior part of the vaginae expanded by the two ora uteri. D. D. The ovaria. E. E. The tubæ Fallopianæ. F. F. The fimbriæ. G. G. The ligamenta rotunda. H. H. The vesica urinaria, partly distended. I. I. The ureters. K. The ossa externa. L. The two lacunæ. M. The meatus urinarius. N. N. The labia pudendi. O. O. The nymphæ. P. The præputium clitoridis. Q. The anus. R. The rectum.

Fig. II. *A posterior view of the same reversed, to give a better view of the two vaginae.*

S. The lower part of the vaginae where it approaches the perinæum. T. T. The two vaginae cut through at the expanded part, immediately below the two ora uteri. V. V. The posterior or internal surfaces of the labia pudendi. U. The rectum turned up. W. The vesica urinaria. X. X. The ureters.

Fig. III. *An anterior foreshortened view of the two uteri, and their appendages.*

Y. Y. The two uteri. Z. Z. The two ora uteri. a. a. The superior portion of the vaginae surrounding and passing between the ora uteri.

The appendages will be easily understood from the explanation of fig. I.

CHAP. V. OF EXTRA-UTERINE, OR VENTRAL CONCEPTION.

THE impregnated ovum, or rudiments of the fœtus, is not always received from the ovarium by the tuba Fallopiana, to be thence conveyed into the cavity of the uterus; for there are instances where the fœtus sometimes remains in the ovarium, and sometimes even in the tube; or where it drops out of the ovarium, misses the tubes, and falls into the cavity of the abdomen, takes root in the neighbouring parts, and is thereby nourished: but as these fœtuses cannot there receive so much nourishment as in the succulent uterus, they are less, and generally come to their full growth before the common term.

Of these, some burst in the abdomen; and others form abscesses, and are thereby discharged; others dry, and appear bony, and remain during life, or are discharged as above, or by stool, &c. The following instances will sufficiently illustrate these peculiarities.

In the second volume of Transactions of the Society in London, instituted for the improvement of Medicine and Surgery, are the following observations on the case of a woman who died with a fœtus in the Fallopian tube, by Dr. John Clarke.

1. " B. C. when about forty years of age, supposed that she became pregnant in December, 1790, having missed her menstruation, which before that time, except when she was pregnant, had always been regular. The commencement of her pregnancy was attended with morning sickness, and the other symptoms which usually accompany that state. The sickness lasted about four or five months, after which she continued to increase in size till she had attained that of a woman at the conclusion of pregnancy, when she hourly expected to fall into labour.

" At this time she was attacked with violent pains, shooting from her back towards the navel, for three or four successive days, yet no advancement was made towards delivery. At last the pains left her, and never returned.

" This circumstance, added to the opinion of a person who attended her, induced her to think that she had been mistaken in imagining herself pregnant; and the more so, from finding, after some time, that her bulk gradually diminished.

" Some months now elapsed without her being sensible of any material alteration, except that of her general health declining, so that she had been several times confined to her bed for a week or two together. At length she began to feel constant pain near the middle, and towards the lower part of the cavity of the abdomen. This was succeeded by a swelling near the navel, which increased till it formed a tumor, the diameter of which was

from three to four inches. It should be observed, that about two months before her admission into the hospital, some small openings took place on the surface, which discharged a very fetid fluid matter: these were healed in consequence of local applications from time to time. The skin covering the swelling was very much stretched, and soon became extremely red and tender when touched. The contents of the swelling were evidently hard and irregular. After a little time an ulceration began to take place on the surface, extending from the navel a little towards the right side. This produced a communication with the inside of the tumor, from which issued a considerable quantity of an extremely fetid, sanious fluid. The opening gradually enlarging, several bones of a full-grown foetus were discharged through it, as some of the ribs, vertebræ, the temporal bones, or parietal bone, half of the lower jaw, &c. Whilst these bones were coming away, her stools became very offensive, resembling in their smell the discharge from the fore at the navel.

"Soon after this the woman began to lose her flesh and strength; her pulse became weak, small, and frequent; symptoms of great irritation supervened, and at last she was cut off.

"Leave was obtained to examine the body, which was accordingly done. I was present when it was opened by Mr. Abernethy, by whose favour I am in possession of the parts from which the drawings annexed to this paper were taken. Our attention was of course directed to the organs concerned in conception. The uterus was found to be in its natural situation, but nearly twice as large as when unimpregnated, and thicker in its substance. The peritonæal coat of this viscus had become thicker than a crown-piece, in consequence, as I suppose, of the inflammation communicated to it from the surrounding parts. In the cavity of the uterus nothing remarkable was found. The two Fallopian tubes were pervious from the uterus towards their fimbriated extremities, and as the parts were involved in some obscurity from the effects of inflammation, small bougies were introduced into their orifices, that their course might be more easily detected by dissection. Upon tracing them, that in the left orifice led to the usual termination of the tube at the fimbriæ: but that in the right led to a cyst in which were contained the remainder of the bones, not discharged through the aperture at the navel.

"The anterior part of the cyst had been attached to the peritonæum, lining the muscles of the abdomen, so that there was no communication between it and the general cavity.

"The posterior surface of the cyst lay upon the mesentery, to which it had become closely united, so as to form one substance with it. The consequence of this was, that a portion of the intestine very nearly surrounded the cyst. (See fig. 1 and 2,

in Plate II.) Ulceration had also begun towards the sides of the cyst, which lay nearest to the intestines, and had actually formed two openings into the intestinal canal, through which a part of the fluid contents of the cyst had been evacuated during the life of the patient, giving the peculiar smell to the fæces, which has been before observed.

“ The cyst, at the time when it was examined, was no larger than barely sufficient to contain the bones then in it, all of which were as perfectly free from the smallest appearance of cartilage, ligament, as well as of any other soft substance, as they could have been made by the nicest dissection and maceration.”

2. In a preceding volume we have, from the pen of the same ingenious gentleman, the following history of a fatal hæmorrhage from a laceration of the Fallopian tube, in a case of an extra-uterine foetus.

“ The subject of this case was a married woman, about thirty years of age. Previously to the attack of the complaint which destroyed her, she had been occasionally subject to some bilious complaints: in all other respects she had enjoyed a tolerably good state of health, and had borne one child. About two months before she died, she perceived a return (as she thought) of what she called her bilious complaints, on account of which she took, of her own accord, some medicines, which she had been accustomed to employ upon similar occasions; and she paid so little attention to an obstruction of the menstruous discharge for one period, as never to have mentioned it to her husband, nor to her apothecary, until a few days before her death.

“ On the 12th of May, 1791, she went into a warm bath, with a view to relieve her bilious complaints, and on Friday, the 13th of the same month, in the morning, without any previous exertion, she was suddenly seized with a violent pain in the lower part of her belly, on account of which she lay down upon a sofa in the room, where she fell into a fainting fit, from which, after a few minutes, she recovered.

“ At this time she sent for her apothecary, a very sensible and intelligent man, who, as she still complained of great pain, took away about eight ounces of blood, supposing that there might be inflammation in some part of the cavity of the abdomen, and directed her to take some laxative medicines, in order to evacuate the intestines, which were attended with the desired effect. The pain, however, still remaining, he exhibited an opiate to procure relief, which it did in some degree, though not entirely.

“ He kept the bowels open, and palliated the pain by anodynes taken internally, thrown up the rectum by clyster, and applied externally by fomentation, which formed the plan of treatment, and was pursued uniformly through the whole course of the disease. Nevertheless the pain was not removed by these

means, but returned with great violence, by paroxysms, both in the belly and near the loins, and was generally accompanied with vomiting, yawning, and fainting. The pulse during all this time was not frequent, and the tongue was of its natural colour.

“ By the frequency of these attacks her strength was very much reduced ; nevertheless, on Monday (May 16th) she thought herself rather better in the course of the day ; but towards the evening her pain returned with aggravated violence, and she became extremely faint and low.

“ At this time I was desired to see her. I found her extremities in a cold sweat : there was no pulse at the wrist ; she was exceedingly restless, and almost incapable of speaking (though she had within a quarter of an hour been very sensible) ; she became in a few minutes more and more restless, more and more faint, and expired.

“ After her death we were desirous of ascertaining by dissection, if it were possible, the cause of this uncommon disease, which proved so suddenly fatal ; and having obtained leave from her relations, we examined the body on the following day.

“ Upon dividing the integuments over the cavity of the abdomen, we were struck with the gushing of blood in large quantity, which, when collected, amounted to nearly a gallon. It was partly fluid, and partly coagulated. When we had cleared away the blood, the viscera presented themselves not only free from any appearance of inflammation, but even more pale than they are commonly found.

“ We now sought for the source of the hæmorrhage in the situation of all the large vessels near the liver, spleen, mesentery, &c. but in vain. Upon taking hold of the uterus, it felt more pulpy than it commonly does, and was enlarged rather beyond its natural size in an unimpregnated state. Passing the hand into the cavity of the pelvis, in the posterior chamber, to wit, between the broad ligaments and the rectum, I perceived still remaining there a quantity of coagulated blood. This I removed, and, after having carefully examined all the surfaces, discovered a lacerated appearance, surrounded with masses of coagulated blood, in what at that time seemed to be the right ovarium. I therefore cautiously removed the uterus with its appendages, and reserved them for further and more accurate investigation than could at that time be afforded.

“ When the blood was removed from the part (which in the confusion occasioned by coagula appeared to be the right ovarium), a laceration was found to be in the Fallopian tube, about an inch and a half in length, each extremity of which was about an equal distance from the respective termination of the tube in the fimbriæ and in the uterus. The distension of the

tube at this part was nearly of the size of a large walnut, forming a kind of pouch. More of the coagulated blood being removed from the lacerated part, the shaggy vessels of the chorion immediately appeared, interspersed with small coagula, and lying in contact with the internal surface of the pouch formed by the Fallopian tube: these being separated, and the chorion divided, the amnios shewed itself, containing a foetus perfectly formed, of about six or seven weeks growth. The Fallopian tube was pervious, both leading from the fimbriated extremity to the pouch containing the ovum, and from the pouch to the inside of the uterus, so as to be capable of containing a bristle. The diameter or calibre of the tube, between the fimbriae and the pouch, was rather larger than it is usually found in the impregnated state. The right ovarium was the next object of examination, in which a large corpus luteum was found, occupying nearly half of the substance of the ovarium.

"Last of all the uterus was examined. This viscus (as I have already remarked) had a pulpy feel, and was larger than it is commonly found in an unimpregnated state. Upon cutting it open, two things worthy of notice appeared. First, the whole of the cervix was filled with that gelatinous matter which is not found except in the state of pregnancy. Secondly, the whole of the body and fundus of the uterus was occupied by the membrana decidua, into the cavity of which the bristles inserted into the two Fallopian tubes penetrated."

Such were the appearances in this singular case; to which, and the preceding, Dr. Clarke subjoins some interesting observations.

"No fact in physiology," says the doctor, "appears to me to be better ascertained, than that the power of conception in the female is altogether and exclusively confined to the ovaria; yet when the foetus is once produced, it may be nourished, and will grow in any living cavity, to which it may become attached, as well as in the uterus. All that it requires is nutrition, and perhaps the influence of pure air on the fluids of the foetus; the e, it appears, that other parts are capable of sufficiently communicating.

"It has been objected to this opinion, in the case described in the former part, as pregnancy had only advanced a few weeks, it was possible that the process could not be extended beyond that time in the Fallopian tube, and that this was the reason why it burst. But many cases on record, and that of this woman, clearly refute this objection, since it is evident, both from the history of the case, and the magnitude of the bones, that the full term of nine months must have been completed.

"There is another point not unworthy of observation in this case, and which has occurred in others of the same nature; that

pains exactly resembling those of labour came on at the end of nine months. I shall not attempt to explain this, but shall just remark, that it confutes all those theories respecting the cause of labour, which are founded on the presence of the child in the uterus.

“ Another thing to be observed is, that the *foetus* seems to have died as soon as the period of nine months was at an end. If we suppose that this depends upon any thing in the economy of the child, which will not allow it to subsist under the circumstance of a want of exposure of its blood to vital air after that time, it would prove a stronger resemblance in this respect of viviparous to oviparous animals than we have been generally disposed to admit, or than we have been well warranted in believing. In the latter we know, that the internal structure of the egg regulates the time of its being hatched, more than the degree of heat to which it may be exposed, as is perpetually proved in the instance of placing hens’ eggs under a duck, or ducks’ eggs under a hen.

“ There is another thing which ought not to be overlooked in this case. Whilst the *foetus* continued to be alive, its presence in the Fallopian tube conveyed no particular sensation, or inconvenience to the mother, more than if had been in the cavity of the uterus, since it does not appear that she was aware of any peculiarity in this pregnancy, and she was certainly well qualified to judge, having been twice in that state before.—This, I think, proves that the sac formed in the Fallopian tube was in a sound state. If inflammation, or ulceration, had been gone on in it, some derangement of the system, or local inconvenience, would most probably have been the consequence, which could not fail to have conveyed sensations of uneasiness to the mother.

“ But as soon as the child died, it began to produce the same effects on the surrounding parts, as any other dead animal matter would have done. In the present instance, the natural powers of the body seem to have been engaged in executing a particular operation. Inflammation was produced, the first effect of which was to unite the surface of the cyst to the interior surface of the peritonæum. After this, the sides of the cyst began to ulcerate, both where this adhesion had formed, and also where they lay in contact with the intestine. During all this time, the putrefaction of the child going on, every thing belonging to it, except the bones, was converted into an uniform sanious fluid.—At last, the ulceration having extended itself to the intestine, and to the skin covering the navel, this fluid was discharged, and afterwards some of the bones, when the farther effects of this process were interrupted by the death of the patient.

“ If the woman had not been worn out by the irritation, there

is no reason, *à priori*, why she might not have recovered *. Every thing was in a right train towards her perfect recovery. The bones had been in part discharged, and the cyst was very much reduced in its capacity. It had once been large enough to contain the whole child, together with the placenta, and liquor amnii; but by the time of her death it was diminished, so as barely to hold the bones, which still remained in it. A continuation of the same process would have left the woman in the same state as before she conceived; excepting the injury which the Fallopian tube must have sustained.

"With regard to the manner in which the cyst became less, I am apt to believe that this must have depended on absorption, as the contents were evacuated; because, although there is good reason to suspect, from the descent of the ovum through it to the uterus, that the Fallopian tube is furnished with muscular fibres; yet the thinness of the sides of the cyst seem strongly to oppose the idea of its contraction depending either on muscular action, or elasticity. If this had been the case, they would have become thicker, as happens to the uterus. the thickness of which is very much increased by the contraction which takes place upon the expulsion of the child and placenta.

"We find in authors, and in detached papers published by different societies in Europe, a number of histories of extra-uterine fœtuses, of which some have been found in the ovary, some in the Fallopian tube, and others in the abdomen.

"Of these some are detailed with accuracy; others are very obscurely related; and a few are connected with circumstances so improbable, as to merit little attention."

Upon an attentive consideration of these and similar cases, Dr. Clarke concludes, that there are no symptoms sufficiently characteristic of conceptions in the Fallopian tube, to enable us to discriminate between them and common gestation in the uterus.

"It further seems," says he, "not to be an uncommon consequence of conceptions in the Fallopian tube, that the tube bursts. Of this accident the consequences will be various, and will depend on many circumstances.

"If the cyst should be ruptured near the part where the placenta adheres, an hæmorrhage must ensue, which will be more or less in quantity according to the size and number of the lacerated vessels.

"If the quantity should be very large, the destruction of the patient must follow, as happened in the case last related. If,

* Mr. Jacob, of Feverham, has described a case in the 8th volume of the London Medical Journal, where the patient actually did recover, after all the bones of a fœtus had been in a similar manner evacuated from an abscess.

Fig. 1.



however, the lacerated part should be of less extent, more distant from the attachment of the placenta, and if the number and size of the divided vessels should be small, then either the laceration may be healed by the coagulated blood forming a living substance and uniting with the torn cyst; or the extravasated blood (if in small quantity) may be absorbed, and the laceration still remaining, the ovum may grow on that side towards the cavity of the abdomen; and as, upon examination after death, the membranes would appear immediately within the parietes of the abdomen, this might give occasion to a supposition that the ovum adhered to some part of the general cavity of the abdomen, when in fact the point of adhesion was to the Fallopian tube.

“Many of the supposed cases of ventral conception have been so inaccurately described, as to leave room to conjecture, that they may have sometimes been of this kind. There are so many obstacles to prevent the ovum, when first detached from the ovarium, from acquiring an adhesion in the cavity of the belly, where the intestines, bladder, &c. are from the very nature of their functions in perpetual motion, as to make the possibility of it very doubtful.”

Fig. I. in Plate II. exhibits an anterior View of the Parts concerned in the first Case described by Dr. Clarke.

1. Part of the common integuments of the abdomen, shewing the ulcer through which the bones were discharged during the patient's life.
2. A portion of the muscular parietes of the abdomen.
3. Part of the small intestines.
4. The uterus cut upon so as to shew its cavity.
5. The peritoneal covering of the uterus thickened by preceding inflammation.
6. Two bougies inserted in the Fallopian tubes leading from the cavity of the uterus.
7. The termination of the left Fallopian tube at the fimbriæ.
8. The round ligaments.
9. Part of the broad ligament of the left side.
10. The vagina cut open, so as to shew its posterior surface.

Figure II. shews a posterior View of the same Parts.

1. A portion of the small intestines.
2. Part of the uterus and vagina.
3. The round ligament, and part of the broad ligament of the left side.
4. The round ligament of the right side.
5. The bougie inserted into the right Fallopian tube, and terminating at the fimbriæ.
6. The bougie inserted into the left Fallopian tube, terminating in the cyst, containing those bones of the fœtus

which had not been discharged through the orifice at the navel.

7. Two ulcerated openings in the intestine communicating with the cavity of the cyst.

Explanation of figs. III. and IV. (Pl. III.) referring to the second Case related by Dr. Clarke.

Fig. III. A view of the Fallopian tube, with the laceration in it.—The chorion and amnios are seen, the latter containing the foetus.—The dark spots furrounding the chorion represent the coagula of blood formed at the extremities of the uterine vessels. The bristles are inserted in the two extremities of the Fallopian tube. The upper leads to the uterus; the lower to the fimbriae.

Fig. IV. *View of the Cavity of the Uterus.*

- A. The mucus in the cervix of the uterus, formed in consequence of pregnancy, which is with difficulty expressed in an engraving.
- B. The decidua, extending over the whole cavity of the body and fundus of the uterus.
- C. A side view of the rupture of the Fallopian tube, and the foetus seen suspended in the amnios.

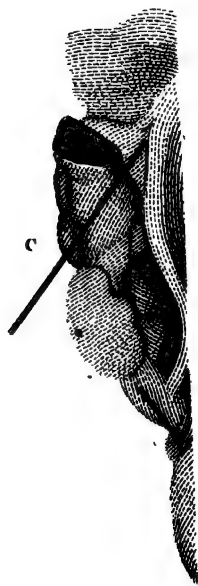
The following case of an extra-uterine abdominal foetus extracted by an operation, by the late Dr. Charles M'Knight, of New York, was communicated by Dr. Mease, of Philadelphia, to the Medical Society of London.

“The woman became pregnant twenty-two months previous to the operation; the nature of the case was rendered unquestionable, by the common symptoms of pregnancy, which proceeded regularly from conception to labour. The menses ceased, the woman grew lusty, had the ordinary complaints, and at the proper time felt the motion of the child, which grew stronger, &c. as in similar cases. At the end of nine months she was taken with labour pains, but no child presented, and after some time the pain ceased, but without any diminution of the patient's size; she left her chamber and betook herself to her ordinary avocations with good health, but an uneasy mind. Under these circumstances she came to town, and consulted different gentlemen of the faculty, who all agreed as to the case, but differed respecting the treatment, whether the operation should be immediately performed; or, as the woman enjoyed good health, and as it was impossible to ascertain the parts which the placenta adhered to, or which it might be necessary to injure, in the complete extirpation of the foetus, that the operation should be deferred until something like an external imposthumation should appear, that nature should thus point out the place and manner in which extraction should be performed. On the other hand Dr. M'Knight said, that an immediate operation, before the woman's health became

V.

E.

Fig. 3.



injured, and before the contiguous parts should suffer from compression and putrefaction, was most adviseable. The event has proved," says Dr. Mease, "that he was right; and I confess, from the observation I made during the operation, I am of opinion, that this reasoning and practice will always be found so.

"The tumor of the abdomen lay considerably to the left side, and the protuberant part of the child could be distinctly felt, particularly a protuberance which was taken for, and proved to be, the head of the child in the left groin, and a less one supposed to be the knee, on the opposite side above the navel. The woman submitted with great fortitude to the operation, which Dr. McKnight began by an incision on the left side, somewhat above the navel, and a little beyond the junction of the rectus and oblique muscles, which he continued to the pubes, and so near it as to divide one of the epigastric arteries. He operated boldly, and very soon penetrated the cavity of a sac, which contained the waters and fœtus; as soon as the waters were discharged, he introduced his fingers, and extended the opening both upwards and downwards, which brought the cheek and one arm into view; the arm was taken out, and by it an attempt was made to extract the child, but it proved too large for the opening, and so found that no part gave way. I proposed lessening its bulk, and the bones of the head were taken away; it was then easily extracted, but still the shoulders gave great resistance; and suddenly yielding, the fœtus fell from his hand, and unluckily broke the navel string, that was yet within the body of the mother; and although after searching for some time, he found a small appendiculum, which he took for the broken end of the navel string, yet he could never find the placenta, nor was any thing like the containing membranes of the child delivered. These circumstances gave me great uneasiness for the poor woman, and although, in some measure, reconciled to it, I did not care to examine by introducing my hand into the wound, but I was struck from the appearance with this idea, that the whole membranes and placenta had united to the neighbouring parts, and formed a separate sac, connected in all its parts to the internal surface of the peritonæum; so that when the child was extracted, the hand was not admitted to the surface of the intestine, but to the inside of the sac; and as the placenta must necessarily lie on the outside of this cavity, it, for that reason, could not be discovered and taken away; but whether this conjecture was true or not, neither placenta nor membranes were delivered; the lips of the wound were brought together, and they were left to slough off during digestion, which proved a dangerous process; the discharge was very great, the sloughs black, ichorous, and offensive, and reduced the woman very much; nevertheless, however, she has struggled through it, and is now so far recovered as to go

about, and I am told by Dr. M'Knight, that the wound is healed to a very trifle without any sinus."

Dr Mease has subjoined some remarks, on the impropriety of attempting to extract the placenta, should a similar operation in future be performed. The cases on record prove, that when the ovum escapes into the abdomen, and grows in that cavity, the foetus has neither the same envelopement of distinct membranes, nor the same large and perfect placenta, nor length of funis, which it possesses in its natural receptacle, the womb. Consequently, as all parts of the ovum closely adhere to the surrounding peritonæum, any attempt to extract them would probably be injurious.

In the above-related case, it was not necessary to tie the funis. Should a foetus be extracted at an earlier period, at the termination of nine months, with a view to its preservation, as well as for the safety of its parent, a ligature on the chord might perhaps be necessary: this, however, is a circumstance, which future experience must determine.

4. The following curious case of an extra-uterine foetus discharged by the rectum, by Mr. Mainwaring, apothecary, is published by the Society for Medical and Chirurgical Improvement.

"A. C. was of the middle stature, but well proportioned, and rather thin. She lived temperately; was married at the age of twenty-nine, and conceived very soon; but suffered more during her pregnancy, than is usual in that state.

"She miscarried at the end of a few months, but recovered from this accident perfectly.

"Nine months after the miscarriage, she conceived a second time, but being more attentive to her situation, she arrived at her full time, and on the 26th of February, 1794, was delivered of a large and healthy male child.

"She suckled her child for a twelvemonth, during which time she menstruated regularly. Afterwards, about the beginning of February, 1796, the menstrual discharge ceased for the space of nine weeks, during which time she suffered much from morning sickness, and pains in the groins. These pains extended over the whole of the pelvis, in the lower part of which, and also all over the pubes, a considerable sense of fulness was complained of, attended with frequent and strong desire to go to stool.

"She had formerly been much subject to the piles, and at this time was troubled with them.

"She passed very small quantities of urine, with much difficulty and uneasiness.

"On the 3d of April, 1796, she was attacked with severe pains in the region of the uterus, accompanied with hæmorrhage, and they continued with little or no abatement for three weeks. She was expected to miscarry, but no ovum came away. Under

these circumstances she was considerably relieved by the use of fomentations, neutral salts, and opiates.

" On the 29th of May, while in bed, laying her hand upon the lower part of the abdomen, where she suffered much pain, she perceived a hardness or lump a little above the left groin, and there was a throbbing in the part.

" Being at this time in the country, she returned in a few days to London, and upon a more particular examination being made, a tumor was likewise felt above the right groin, which in the course of two or three weeks extended almost as high as the navel, but it was most evident on each side of the recti abdominis muscles.

" A considerable pain was complained of whenever even a small degree of pressure was applied to any part of the abdomen, but chiefly a little above the upper part of the tumor.

" This was the state of the case in the beginning of June; about that time a coffee-coloured fluid was discharged from the urinary bladder, almost without her possessing the power of restraining it. The quantity nearly amounted to three pints in twenty-four hours. Before this period, the quantity of urine was less.

" The urinous discharge probably contained some portion of blood. A discharge of blood was also found to come from the vagina, and it continued to appear in a small quantity until the end of September, 1796, when it entirely ceased.

" She consented to be examined per vaginam (a suspicion arising of a tumor being formed in the pelvis), and a tumor was found in the hollow of the sacrum, occupying its whole extent, and projecting so much forward as nearly to fill the cavity of the pelvis. It seemed to lie between the vagina and the rectum, and was less than two inches within the pelvis, reckoning from the external orifice.

" The os uteri was altered in its shape and situation, being pressed against the bladder and pubes. The cervix uteri was so fixed in its situation, as to resist any attempt which was made to move it upwards. From these circumstances the urine was passed with difficulty.

" The shape of the tumor in the hollow of the sacrum (as far as it could be ascertained by examination with the finger) was nearly round, but somewhat flattened upon the anterior part. In breadth it was supposed to be between three and four inches; and in thickness, from two to three. It felt moderately firm.

" It should have been noticed before, that the tumor in the pelvis was lower than that which is found in cases of retroverted uterus; and that the posterior part of the vagina was without the puckering, occasioned, in that disease, by the fundus uteri falling behind the vagina.

" The above remarks were made early in the month of July, 1796, about which time the abdomen had acquired the appearance it generally has in the sixth month of pregnancy.

" The patient observed, that by laying both hands upon the abdomen, and pressing with them lightly downwards, the tumor in the lower part of the pelvis seemed to descend in a small degree.

" The patient complained of so much pain (in July) over the whole of the abdomen, that she was bled, and the blood drawn was fizzy. Fomentations and opiates were also used with relief. And it should be noticed, that to such means recourse was had three or four times during the space of sixteen months; in which time topical bleedings also were used twice.

" Towards the end of September, an obscure motion was sometimes felt by the patient in the abdomen, and the breasts were observed to secrete milk. The stomach was also much affected with nausea. From this time (Sept. 29, 1796) until December 23, she had no menstrual discharge. On that day the menses appeared, and returned with great regularity for the space of ten months.

" From the time of the renewal of the menstrual discharge, until the 10th of August, the patient had several attacks of pain in the abdomen and loins. The patient was in consequence reduced in flesh, and the tumor in the abdomen was more easily traced. It was found to be an uniform substance, for before this period, it was not possible to determine if it was one or more tumors.

" August 10, 1797, a second examination was made per vaginam, and for the first time it was observed, that the tumor in the hollow of the sacrum did not admit of so much pressure as was remarked ten months before, without occasioning painful sensations.

" The tumor was not found to have increased much in size, but its density was become so considerable, that it felt like bone, and in tracing the surface, it was not difficult to discern ridges, or (as it was supposed) futures. Upon repeated and attentive examinations, the head of a fœtus was felt through the posterior part of the vagina.

" An attempt was now made to determine if the tumor in the vagina was connected with that in the abdomen, and by pushing the tumor in the pelvis upwards, that in the abdomen was perceived to be in a small degree elevated.

" The only material change discovered after the month of August was, that the tumor in the pelvis, when pressed upon, was more painful.

" Towards the end of September, the lower tumor was supposed to contain a fluid, and the bones, when lightly pressed,

could be made to recede. The patient became now more feverish, restless, and reduced in flesh.

• “ On the 22d of October, a discharge took place by the rectum: in colour and consistence it resembled pus, and the smell of it was very putrid. It was not found to be blended with the fæces, but came away between the stools, and occasioned a frequent and distressing desire to discharge it. The quantity each time was from one to two ounces.

“ This discharge continued, without abatement in quantity, for the space of two months, and in a smaller quantity until the termination of the process.

“ On the 29th of October, by straining the discharges, there were found small quantities of hair; this was seen several times.

“ On the 25th of November, a strip of apparently ligamentous substance was discovered, and in ~~two or~~ three weeks another, each about two inches long.

“ During this month, the distension of the abdomen became much reduced; and in the month of December, it was difficult to discover any resistance from the tumor above the pubes. That in the pelvis was found to have in some measure receded, or was lessened; but the bones contained in it were more evident, and a grating among them was easily perceived by passing the finger along the sac.

“ About two inches up the rectum, in the anterior side, an aperture about as wide as a silver penny was discovered by Dr. Denman.

“ On the 31st of December, 1797, two bones were found in the fæces, a radius and ulna; they were without epiphyses and periosteum, and were only one inch and a quarter in length.

“ On the 2d of January, 1798, two bones of the thumb were found; and on the 5th, two of a finger; with part of a cervical vertebra, and also a tooth.

“ On the 7th, the occipital bone was brought away with considerable difficulty and distress, by the patient assisting herself in some measure with her fingers.

“ On the 8th and 9th, several bones of a lower extremity, with another tooth; and a third was found a few days after.

“ By passing a finger up the rectum, through the aperture (which was now much enlarged), several bones of the head were readily felt. The patient not permitting them to be then extracted, they were suffered to remain until the 17th, when one of them being somewhat advanced, and giving her much uneasiness, it was brought away by turning the saw-like edges of the bone, which proved to be one of the parietal, towards its concave side, with the aid of a pair of dressing forceps, after a tedious and distressing trial; and on the 21st, the other was in the same

manner extracted, but without the patient suffering so much: Oil was previously injected each time.

" Immediately after the second parietal bone was brought away, one of the tibial was extracted.

" All the bones of the upper part of the head were without the pericranium, very thin, and brittle.

" On the 22d, with one of the frontal bones, several small ones were expelled; and on the 24th, the greater part of the basis of the skull, with a ligamentous and membranous substance, holding them loosely together. There came also on the same day several bones of a lower extremity, mostly of the foot; and each day, during the remainder of that month, several small bones were collected.

" On the 1st of February, came away the other frontal bone, the whole of the spine, and all the ribs attached to it; also a humerus with the scapula, the whole of the pelvis, and one thigh bone, all loosely connected together, with the intestines to the spine, and lying in the pelvis in a collapsed state, but little or no appearance of the other viscera.

" On the same day, came away a lower extremity from the knee, with its integuments and skin entire.

" This was the last part of the foetus that was found in the discharge, and supposed to make the whole that belonged to it.

" About the 14th of February, there was found among the faeces a few pieces or shreds of apparently thickened membrane, having some resemblance to flakes of coagulated lymph, and of a yellowish, white colour. This was supposed to have been part of a cyst, which perhaps had enveloped the foetus.

" It appears that this process occupied a space of two years and about two weeks.

" During the last four months she was from weakness confined to her bed, and in a state of almost perpetual sweating, and seldom free from feverish affection; the pulse was generally at the rate of one hundred in a minute.

" She was considerably reduced in flesh; her appetite was much impaired during the whole time; and while confined to the bed, she took but very little sustenance; a few weeks, however, before the termination of this tedious and distressing trial, milk was found to agree with her stomach, and its good effects were soon evident.

" She also experienced much relief from opium, of which she took from two to six grains a-day:

" Attempts were frequently made to throw up clysters, but without success.

" As soon as the last expulsions had taken place, her amendment was most evident; her appetite became urgent, and she took food very often, every kind agreeing with her stomach.

Her flesh returned rapidly, and in less than three months her strength was restored.

"On the 8th of March following, she had pain in the lower parts of the abdomen, attended with diarrhœa, which left her in about twelve hours, and the following day the menses returned, which had not appeared for the space of three months. She did not experience any interruption in respect to menstruation; in the first return the quantity was comparatively small, but an increase was remarked at each period. and in the space of eight months it was found to amount to its usual quantity."

Mr. Mainwaring afterwards states, that in September 1799, Mrs. C. enjoyed uninterrupted good health. Her monthly periods were regular, but the quantity of blood less than was usual before her pregnancy. "She sometimes," says he, "complains of an uneasy sensation in the vagina; and, upon examination, the projecting part of the cervix uteri into the vagina, was found to be shorter upon the left side than upon the right. The vagina might be said to be somewhat constricted upon the left side, so that the cervix uteri was less moveable there than upon the right, and some pain was felt upon touching that part with the finger."

The cases above related offer the reader as much variety as can well be required; but those who wish to pursue the subject still further, will do well to consult Dr. Garthshore's authenticated cases of extra-uterine conception, published in the 8th volume of Memoirs of the Medical Society of London.

CHAP. VI. OF MONSTERS.

WHEN two or more ova contained in the uterus attach themselves so near one another as to adhere in whole or in part, so as to form only one body with membranes and water in common, this body will form a confused irregular mass called *monstrous*; and thus a monster may be either defective in its organic parts, or be supplied with a supernumerary set of parts derived from another ovum. This seems a rational conjecture; but while every thing relative to generation is a mystery, how can we account for the extraordinary phenomena? Some authors enumerate a third species of monster, the product of a mixed breed, exemplified, for instance, in the mule, produced by the mixed generation of an ass and a mare. In this animal there are organical parts different from what pre-existed in the parents; there is a defect of some parts, a luxuriant growth of others; and the defect in the parts of generation, which renders the animal unfit for propagation, constitutes a very curious and particular species.

Of human monsters the records of midwifery furnish a great

variety of instances. We shall content ourselves with laying before the reader a few of them, which modern practitioners have described. The following accounts appear in the Medical and Physical Journal.

1. Mr. Foster, of Lacy, delivered a woman who had gone her full time, of a male child; both hands, one knee, one leg, and one foot of which were either singularly imperfect, or strangely distorted, according to the following description. It lived some hours, and was perfect in every other part.

The *right hand* was furnished with a thumb and fore-finger, perfect in their nails and joints; the other three were wanting. The space they should have occupied had much the appearance of a stump that had been healed after amputation. From the inner part of the wrist were suspended, by a slender filament, about an inch in length, two round fleshy substances, one of them as large as a marble, the other somewhat smaller.

The *left hand* was destitute of both wrist and palm, and terminated in one large finger, which had its nail and joints perfect, and was supported by a single metacarpal bone, that moved upon the small extremity of the ulna.

The *left knee* was destitute of a patella. A preternatural elongation of the thigh-bone impeded the outward motion of the leg, which was bent considerably inwards, and could move only backwards, and a little towards either side.

The *left leg* terminated abruptly in the basis of the tibia, as it the foot had been long amputated from it.

The *left foot* was joined to the lower part of the leg in a horizontal direction. It had the fourth and fifth toes only. The space which the others should have occupied resembled the defective part of the right hand. A kind of corn, evidently the effect of pressure, grew from the outward angle.

2. Mr. Pole, surgeon, in London, describes the following case of malformation: The bones of the head, above the orbits, appeared almost entirely deficient; there were some small portions of the ossa frontis loose and moveable about the globes of the eyes, which latter were concealed by the pressure upon the eyelids: the cutis, on the right side, over the temple and ear, was pressed outward in the form of a tumor. The mouth was stretched open, by the centre of the upper lip being drawn upward to a great extent, which exposed the upper gums; these, as well as the lip, formed a sort of angle in that part of the face where the nose is usually situated: there was in fact no nose, but the two nostrils opened near the internal angles of the eyes on each side; that on the left side appeared in the extremity of a projection, somewhat resembling a proboscis; that on the right, formed a longer and more incurvated orifice, with its edges in some degree projecting from an irregular surface. From this nostril was continued to the

Monsters.

Fig. 1.

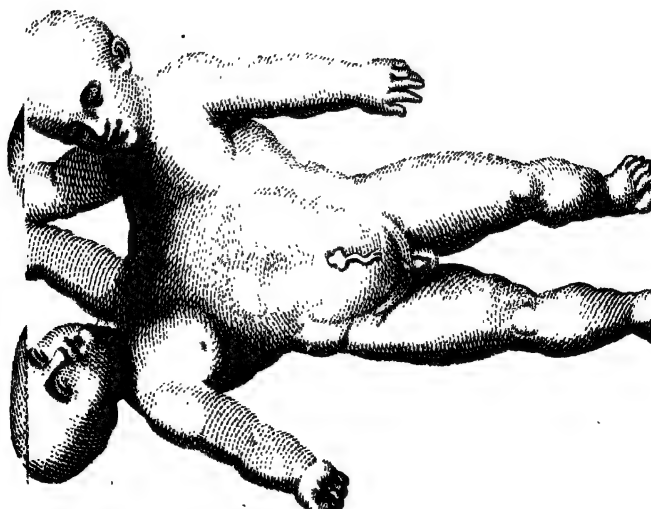


Fig. 3.



Fig. 4.



angle of the upper lip, a prominent ridge, constituted by a stretching of the cutis, rather than any bony substance resembling the ossa nasi. The summit of the cranium being entirely deficient, there was not sufficient space for containing the whole of the brain. This want of room was supplied by a large spherical sacculus covered by the common cutis, situated principally over the left eye, and occupying the place of the left os frontis. It was about the size of a goose's egg, constituting an *hernia cerebri*. This tumor was very soft, falling in whatever direction the head was placed, and was connected by a base of about an inch and a half in diameter. The occiput was tolerably well formed, but appeared to be deficient towards its upper edge. The neck of the child was remarkably short, and the thorax very prominent anteriorly.

The most singular circumstance in this case, is the attachment of the placenta to the upper part of the child's head (distinguished in the plate by a dark line passing from the left nostril to the top of the ear on the same side), which was not by mere membranous union, but of its more solid and compact parts. The largest portion of the placenta lay over the occiput and scapulæ, and extended considerably to the right and left side of the head, so that in viewing the child, as it is represented in the drawing, its internal surface only is seen, with the upper edge bent backward: this attachment of the placenta was principally toward the right side of the head. The umbilical chord came from the placenta on the left side, and appeared to take its course down the same side of the body to the umbilicus, from which it had been separated before it reached Mr. P.: about six or eight inches of it were left to the placenta when it came to his hands: near to the extremity of the chord a ligature was applied. At a small distance from the origin of the funis there was a remarkable convolution of the umbilical vessels, which gave it a peculiar appearance.— See Plate IV. fig. 4.

3. Dr. Flachland relates a curious instance of monstrosity, which is the more remarkable, as the same woman had been delivered three times of children that in every respect shewed in their structure the same deviation from nature. The face, breast, and belly, were naturally formed, but the superior extremities measured only $3\frac{1}{2}$ inches, and the length of the inferior extremities 4, the left $3\frac{1}{2}$ inches; they were, at the same time, bent inward in such a manner that their heads were near the genitals. The fore arm, on both sides, was entirely wanting, the humerus being united with the hand by two ligaments; but this union was not effected by a joint, as the condyle of the humerus and the superior margin of the carpus consisted of a gelatinous substance. The tibia and fibula were likewise wanting on the inferior extremities, and the feet joined to the patella, in a similar way, as was

observed on the superior extremities. All the intestines were naturally formed, and in a natural situation.

4. The following case of *lusus nature* is given by Mr. Humby, a practitioner in London.

"In October last," says the writer, "I was engaged to attend the wife of a respectable tradesman, who expected to be confined about the end of November, or beginning of December. I heard nothing of her till two in the afternoon of the 12th inst. when I was informed she was unwell, and expected soon to need my assistance. At half past three I was desired to visit her; I went directly; and on hearing her voice, was convinced that the pain she was then suffering was an expelling one. I found the head and shoulders born; they were involved in the membranes, which I ruptured at the neck, and slipped over the head; the child at this time apparently lifeless. I determined to wait the natural expulsion of the breech, &c. rather than hasten the delivery. In about five minutes, I received a mass of a very uncommon nature; the placenta I distinctly felt; I withdrew the whole with the child, and wrapped it in a flannel which lay at hand. My attention was then directed to the mother, fearful of hæmorrhage from so sudden a separation of the placenta. I proceeded to ascertain the state of the uterus, and discovered that its fundus was to be felt by deep pressure only, on a line with the pubes. I was now satisfied with respect to the safety of my patient, and proceeded to inspect the child; its appearance was so extraordinary that I was desirous of taking a more minute examination than I possibly could in the chamber. I was permitted to take it away in the evening; and on examination, in the presence of Dr. Ainslie, Mr. Earl, and Mr. Heavyside, the appearances were as follow:

"The head, perfect and natural; the thorax, very small, with a depression of the costæ on the right side; the arms perfect, but a stricture in the elbow joints, which prevented their full extension (this stricture attracted my notice immediately on rupturing the membranes); the spine shorter than usual, curved to the left side, so that the sacrum, &c. were in a horizontal position; the lower limbs, distorted and contracted; the left foot, perfect; the right, shapeless, with toes only; but the most remarkable appearance was the total want of abdominal muscles and integuments; the liver, stomach, and intestines (the larger ones distended with meconium) exposed; no omentum; the peritonæum, emanating from the thorax and curvature of the spine, hung over them as an apron, having no attachment at its inferior edge; the funis not more than six inches long; the placenta, natural, excepting a particular fatty appearance at its circular edge."

5. The following case of monstrosity is given by Mr. Pulley, of St. Thomas's hospital.

"About a fortnight ago," says he, "I was called to a woman who was delivered of a female child, full-grown, and, to all appearance, well formed in every part, excepting the head, and there was a deformity very remarkable. Both parietal bones were entirely wanting, and the whole of the frontal bone, except its orbital processes, and that part which forms the nasal process: the upper part of the squamous portion of the temporal bone (on both sides) was wanting, but the mastoid and zygomatic processes could be distinctly traced, and the meatus auditorius externus seemed to be perfect; as much of the occipital bone as extended to rather beyond the crucial ridge was present, and the whole length of the upper edge was turned remarkably outward; the integuments on the os occipitis were, from the upper part of the neck, folded up in great quantity, and terminated by dipping down under the edge of the occipital bone, where the hairs were very numerous. As to the brain, there appeared but little, not more in quantity than the half of a common-sized orange, which was unequally divided by a longitudinal fissure: I would rather substitute the word excrescence for brain, for certainly the appearance had not much the character of the latter—no dura mater existed, and I believe no pia mater (at least, none on the surface; nor, in fact, could this be expected, there being no longitudinal sinus into which the vessels could empty themselves, nor was there any appearance of vessels). Pressure on this excrescence seemed to produce no effect; but on this I would not rest, as it certainly could not, in justice, be carried to an extent sufficient to give a decided result. The covering seemed only a common cuticle, which was, the day after the birth, abraded in several parts. The child lived about thirty hours, making continually a moaning noise, and breathing with extreme difficulty; at intervals it was seized with a general spasm, in which state it remained to appearance dead, for above a minute, when it revived by sudden and repeated gasps. In such a spasm it was carried off. The child took a little nourishment more than once, swallowing with much difficulty, which was heightened by the want of the palate. Neither urine nor feces were evacuated."

6. In a subsequent number we have another case by the same gentleman.

"The subject was a full-grown female child, and was born dead. The imperfection of the cranial bones, was similar to the case before related, excepting that the os occipitis was nearly perfect, and its edge was not projected unnaturally outward. The integuments from the occipital bone, did not dip down under its edge, but passed on the brainy excrescence, and were there soon insensibly lost. The brain had a fungous appearance, and seemed not to be deficient in quantity; it was not made what is called hemispherical, by a longitudinal division, but appeared a con-

fused mass; neither dura nor pia mater apparently existed. The most curious part of this monstrosity was the existence of a dense semi-transparent membrane, which was attached to the left side of the summit of the excrescence, to the extent of about an inch. This membrane passed down to the left side of the face, and there formed several attachments; it adhered to the upper lip on its left side, producing a division in the lip, which exactly corresponded in appearance with what is termed the hare-lip; it also adhered to the left ala of the nose, and rendered the nostril on that side depressed and imperforate; it was also attached to the integuments on the cheek, just under the os malæ; which attachment, with the former, much distorted the left side of the face; its last adhesion was to the helix of the left ear, just above the lobe, which rendered the meatus auditorius externus imperforate, and produced a division of the ear leaving the lobe separated from the pinna. Perhaps I have expressed too much, in asserting, that no dura mater apparently existed, as Nature *might* originally have intended this membrane to have formed it. The admission into the meatus auditorius externus, through the concha of the right ear, was so covered by integument, that the head of a probe could only be introduced; the entrance to the right nostril was in the same way impeded; and the eye-lids of both orbits were completely united, except in having a similar small perforation; and when a probe was passed through each perforation into the orbital concavity, it could be passed freely about it, and seemingly to its bottom; from which I should conclude, that no eyes existed."

7. The foregoing productions gave occasion to a communication on the same subject from Mr. Cuffance, of Kidderminster.

"I remember," says he, "seeing one very singular about twelve years ago. I think the subject was a boy; it moved its limbs when first born a few moments, but never breathed. The parietal bones stood up on each side, and being somewhat crooked, had the appearance of small horns. There was no brain, but a small excrescence, which seemed to form the beginning of the medulla oblongata, and entirely destitute of the occipital bone. I made a preparation of this subject, which remained with the gentleman with whom I then lived. Some time in March last, I was called to the wife of a carpet-weaver, in this town, who was in labour. Upon touching, to ascertain the presentation, I had no doubt, from the soft sensation the part gave to my finger, that it was a breech case, and I fully expected a tedious labour; but, to my surprise, the very next pain protruded the head, and the whole body immediately followed. I now discovered the soft part I had touched, was a little nob just above the occiput, which supplied the place of a proper brain. There were no parietal bones, and so small a part of the frontal,

that the eyes seemed to stand on the top of the forehead. The face was regularly formed, but the back part of the head was quite flat, in a line obliquely backward from the frontal sinuses to the first vertebra of the neck. This monster was a girl, and quite motionless when born."

8. A monstrous human production, in which the *spinal marrow* was wanting, is described by Mr. Simmons of Manchester, and accompanied with some remarks that merit attention for their ingenuity.

"The mother," says Mr. Simmons, "was delivered at Bolton, by Mr. Barlow, to whom I am indebted for the history of the case, and for the foetus itself. The only material circumstance in the former, was, the woman's positive assertion that she went two months over her time, which, however, I am inclined to doubt, and would rather suppose that she had committed an error in her reckoning. In the cases most analogous, the birth has been usually premature, generally at the seventh month, and it happened so in my former case.

"In this child, the upper part of the cranium is entirely wanting; and there remains only a thin plate of bone, covered with a doubling of membrane, in place of the cervical and the greater part of the dorsal vertebrae. This fold contained no medulla, though it exhibited, on being slit open, some slender fibrils, which might be construed into nerves; I should compare it to the proper coverings of the medulla spinalis, of a thinner texture. Lower down, a displaced portion of vertebra appears, which was hollow, but contained no medulla; the rest of the spine consisted of a solid column of bone, without any spinous processes. The child had, besides, a slight inversion of the feet, and a hare-lip on the right side; in other respects, it was full grown, and the colour of the skin was natural.

"There did not appear to be any deviation from the common structure and arrangement in the viscera of the thorax and abdomen: the heart, lungs, and thymus, occupying the former cavity, in their proper order; and the stomach, liver, spleen, kidneys, great and small intestines, &c. the latter. The larger intestines were also distended with meconium.

"In the chest too, I traced the phrenic nerves, descending to the diaphragm in their usual course; and in the neck, the par vagum, with its ganglia and intercostal, lying between the carotid artery and internal jugular vein. Though the eyes were outwardly well formed, I could not find by dissection any optic nerve.

"The nerves in the upper and lower extremities were, nevertheless, perfect; for I traced them in the arm and in the thigh, and in neither did I observe any difference in their number, size, colour, or distribution.

" This foetus was still-born, which, if I mistake not, has always been the case when the brain has been wanting. However, the mother was not sensible, during her pregnancy, of any difference from what she had been formerly accustomed to, either in her own feelings or in the motion of the child; and she had had many children. The birth was marked by no particular occurrence; it would probably be facilitated by the reduced bulk of the head.

" In comparing the defective structure of this child with the ascertained uses in others of those parts of which it was deprived, I have been led to conclude, that nervous influence is not at all necessary to the growth of the foetus in utero. At an early period after conception, it is highly probable, that the augmentation of the foetus is maintained by the circulating system alone; and that it is self-evident from this case, that it can go on at a later, without either brain or spinal marrow, the nerves must grow like the other component parts of the body, and perfectly distinct from any other influence than that of the circulation.

" It is proved by experiment, that when the spinal marrow, or principal nerves, of a limb are divided, the parts below are immediately deprived of their sensibility, and become torpid; hence, we may reasonably infer, that no peculiar property is resident in the nerves themselves. Assuming then, that the nerves serve merely to convey the influence of the brain and medulla spinalis, it is obvious, that when deprived of these sources, they can impart none. Thus, it is evident, that although this foetus had attained the full size, and its motions were not perceptibly different from another, yet, having no sensorium, it could possess no sensation.

" Throughout all nature we observe the wisdom of Providence, in adapting the structure of every animal to its peculiar mode of existence. In the foetus, we note several contrivances for the uterine state, which become unnecessary soon after birth; as the foramen ovale, the funis umbilicalis, and the ductus arteriosus; the thymus too may be numbered, though its use be at present unknown: others, as the lungs, then lie dormant, and are called into activity by its change of condition. But, to bestow their proper functions on the nerves, would then be at least a work of supererogation, as there is no object to which the impulse derived from sensation could be destined. On the contrary, sensibility would expose it to hazards, which Nature has been sedulous to avert, by depriving the funis of nerves, and by surrounding it with the liquor amnii.

" Mr. Barlow informs me, that he has repeatedly tried the experiment upon a presenting upper or lower extremity, and that the result has always confirmed my opinion.

" As far as I have been able to determine, sensation is coeval with respiration; for when, after birth, respiration has been de-

layed, and during the pulsation in the funis no appearance of sensation has arisen till the child began to breathe, the functions of the lungs, and of the nervous system, were then roused into activity in the same moment of time.

"I purposely avoid any further discussion, though the subject is pregnant with much curious matter. My object now has been to prove,

"1. That nervous influence is not at all necessary to the growth of the fœtus in utero; and,

"2. That the fœtus, in its uterine state, does not possess sensation."

Cases of monstrosity in all its capricious varieties might be produced if their production would answer any good purpose here. No doubt the curious reader will be sufficiently gratified with the foregoing, together with the delineations in Plate IV. where fig. 1 represents the bony union which took place in a case of malformation. Fig. 2, represents the exterior figure in a case given by Dr. Bland in the Philosophical Transactions. Fig. 3, exhibits a monstrous union of the viscera.

a Shews the heart of the left side, with

b The aorta.

c The heart of the right side, not more than one third of the size of its companion.

d The pericardium common to both.

e e Portions of the diaphragm.

f The Vena cava.

g g g g The inferior portions of each pair of lungs, with their several and distinct pulmonary vessels. These are drawn aside for the purpose of shewing the course of the principal vessels of the hearts on both sides.

h h The kidneys, with their blood vessels and ureters.

Of the difficulties attending the delivery of monsters, we purpose to treat in a subsequent chapter.

CHAP. VIII. OF THE MALFORMATION OF THE GENITAL AND MATERNAL PARTS OF WOMEN.

AMONGST the deviations of nature from her own purposes it is not unusual to find instances of superfluous or defective formation of the parts of women. These indeed are inferior degrees of monstrosity; but as they sometimes happen to parts whose functions are not exercised in the early periods of life, no notice is taken of them till the age of puberty, or the season of utero-gestation. Of this nature are the various instances of imperforated hymen, imperforated vagina, enlarged clitoris, &c. with certain peculiarities in the structure of the mammæ. The simple

treatment required by the two first has been partly described under Surgery ; nevertheless, we shall here submit to the reader some curious instances recorded by different writers.

1. In his "Remarks upon Peculiarities in the Human System, apparently arising from Disease before Birth," Mr. Lucas, one of the surgeons to the Leeds Infirmary, says : "During my attendance as dressing pupil at St. Bartholomew's hospital, in June, 1765, an unmarried woman aged 29 years was admitted, in hope of obtaining some relief for a singularity in her sex. The case was described by a surgeon, who remarked, that after being unable to discover any sign of an uterus, he had made an incision near two inches deep in the vagina, but without any satisfactory effect. This patient was not only examined by the medical gentlemen belonging to the hospital, but also by many eminent accoucheurs. The general opinion appeared to be, that the uterus was not wanting, but that it was not in its usual situation ; to which Mr. Pott added, that its size must be defective. The mammæ were in no respect different, except that the papillæ were somewhat larger than common. The clitoris was perfect.

"The vagina was not one third of its usual length, but its fundus might be pushed a little higher ; yet neither by that passage, nor by the rectum, could the least vestige of an uterus be traced. She had never menstruated, nor had she any symptoms of such discharge being retained. Her nose had for some years bled frequently, but not periodically ; and when that evacuation ceased, a cutaneous eruption spread over most parts of her body.

"As soon as she was made acquainted with the formation of the parts being such as not to admit of being altered, she seemed to regret that her situation had been divulged ; and acknowledged, that a wish to be like the rest of her sex had produced her assent to exposures, which she could not otherwise have submitted to.

2. "In November, 1780, S. M. aged 44, having mentioned to a physician, that she had never menstruated, and that she apprehended this uncommon circumstance was owing to some difference in her make, I was desired to enquire into the cause. The external parts so much resembled the former case as to render a particular description unnecessary. Neither when the urinary bladder was full or empty, by any examination whatever, could the least sign of an uterus be perceived.—On the 28th of December she died, and on the following day leave was obtained to inspect the body.

"From the diseased state of the lungs, it was rather matter of surprise that she had lived so long. The abdominal viscera were found : the vesica urinaria and rectum of their usual size, and in their natural situation. In place of the uterus was a cavity lined and covered with the peritonæum, which, above the hollow, by its

duplication, formed the ligamenta lata. The dimension of this vacuity was sufficient to have contained an unimpregnated full-grown uterus. The ligamenta lata were, by numerous and strong attachments, connected not only with the smaller intestines, but also with the psoas muscles. Behind the fundus of the vesica urinaria, and, in its flaccid state at least, a little above it, was a substance apparently glandular, about the size of a walnut, but in no respect formed like an uterus, situated more to the right than left side of the abdomen. This substance, as well as three imperforate chords connected with it, were included within the duplication of the peritonæum. These chords, which differed in thickness, were chiefly composed of muscular fibres. The first was about the thickness of a crow-quill, and about two inches long; it descended from the centre of this substance towards the middle of the cavity already mentioned, but at its lower extremity was loose, and totally unconnected.

“ The second chord was nearly the same thickness and length, and attached not only to the glandular substance, but also to a Fallopian tube, ovary, and round ligament on the right side.

“ The third chord passed over to the left side of the abdomen, uniting, in a similar manner, the left uterine appendages.

“ Both the second and third chords ascended in their courses, but on the left much more than on the right side.

“ The ovarium upon the left side was not included within the ligamentum latum; but from that part of the ligament might be traced a small imperforate chord, with which an ovary as large as that upon the right side was connected, situated within the abdomen, close to the inguen. A still smaller chord of a similar structure might be demonstrated passing from this, through the abdominal aperture, to a lesser ovary of a flattened form. This smaller ovary was so situated as that, from having been accompanied with violent complaints in the bowels, it had been twice suspected to have been a strangulated hernia.

“ The position of these parts was much higher than natural; and their descent could not take place from the strong attachments to the intestines and muscles. It may not seem improbable that these adhesions were what prevented the glandular substance from being formed into an uterus, of proper size and shape.

“ Why the growth of the appendages, which were not far short of a natural size, should have been equally impeded, seems dubious, except that their situation was less confined. The resemblance of the external parts of generation in these two cases make it highly probable, that the internal would not have materially differed.

“ The first of these women had never been married; the latter had lived for some years with her husband, and had also

cohabited with another man; from both of whom she had parted under circumstances of mutual dissatisfaction.

"This description would have been much more clear, if it had been in my power to have transmitted proper drawings; but there being no artist of sufficient ability in this neighbourhood, several attempts proved ineffectual; and by this loss of time the parts became too much injured to admit of a good preparation being made of them.

"The foetus before birth is certainly no less capable of being affected by inflammation than the infant after it. Where inflammation takes place inflammatory exudation will frequently be the consequence. From hence adhesions may often arise of force sufficient considerably to obstruct the growth, and occasion other very material alterations in the shape of the parts so affected; producing various deformities, and essentially injuring the functions of whatever organs may chance to have been exposed to its influence.

"The division in the hare-lip; the imperforate state of passages naturally open; the union of parts usually unconnected, may seem to have arisen from prior inflammatory affections; as also the descent of the testicle to have been prevented by the operation of the same cause."

3. The following case of an extraordinary enlargement of the clitoris, by Mr. Simmons, surgeon to the British Lying-in hospital, in Brownlow-street, London, appears, with an engraving, in the fifth volume of the Medical and Physical Journal.

"On the 28th of February, 1800, Catharine Talbot, a healthy looking woman, about thirty years of age, was placed under my care," says Mr. S. "in the parochial infirmary of St. Martin-in-the-Fields, where she had been admitted on account of her inability to follow her usual occupation, which was that of working in the brick fields, and other laborious employments, from a swelling of great magnitude, as she described it, hanging from her body; and which, upon examination, I found to be the clitoris enlarged to a most enormous size, gradually increasing in bulk from its stem at the pubis. The circumference of the largest part measured fourteen inches, the circumference of the stem five inches, and the length of the tumor nine inches. Its general appearance was smooth and fleshy, and its upper surface covered with cuticle, and not redder than the skin in general; round the bottom of the tumor, and all its under surface, it was very unequal, being made up of a cluster of swellings of a globular form, of different sizes, from those of large grapes to the smallest; the colour of these was redder, somewhat transparent and shining, but not inflamed or painful to the touch. When the tumor was held up, a detached lobe from the right side hung lower than the rest, having the same globular appearances at its

most depending part. The nymphæ and labia on both sides, especially near the perinæum, appeared as if taking on the same uncommon action with the clitoris, and felt more tender; which might arise from the weight and pressure of the tumor, as they were not much enlarged.

"The most singular circumstance was, that her general health was not at all affected; her appetite was good, and she menstruated regularly; nor did this enormous mass produce any pain except from its weight, which gave her an uneasy sensation at the scrobiculus cordis, which was always relieved by suspending the tumor, but which she was either in general too careless to attend to, or the necessary support too inconvenient to her to apply constantly.

"The account she gave of it was, that the part (clitoris) began to enlarge about four years ago, and without any apparent cause; that it went on gradually increasing in size for near three years, and that during the last year it had enlarged very rapidly. On questioning her very particularly, she confessed having had a slight venereal complaint when she was about 20 years of age, but had not the least doubt of her having been perfectly cured of it, having suffered no interruption to her health in any way till the commencement of the swelling.

"It will readily be granted that this was no common case; its extraordinary size and singular appearance necessarily rendered it an object of curiosity, and I occasionally took several of my medical friends to examine it; many of whom had seen instances of enlarged and diseased nymphæ and clitoris, but never any thing like the present. I saw no chance of relieving the poor woman without an operation; and she being also well convinced of her constantly remaining a burthen to herself and the world without its extirpation, she readily agreed to any plan I might propose.

"I determined therefore on using the knife, and requested Dr. Batty, Mr. Ford, Mr. Blair, and Mr. Morris, to favour me with their attendance on the 26th of March, when the operation was performed in the following manner:—A circular incision was made round the base of the swelling near the pubis, beginning at the inferior part on the right side, and ending on the opposite side, and afterwards continuing the dissection till the whole was removed. It was necessary to take up one vessel on each side; the three vessels of the clitoris were not materially enlarged, and were included in one ligature. The parts were dressed superficially, and thirty drops of laudanum given her. I saw her again in the evening, and the laudanum was repeated; she slept well during the night, and was tolerably free from pain. On the 27th, some pain, tension, and inflammation of the labia came on, accompanied with fever; she took the saline mixture during the

day, and at night the opiate was repeated. She discharged her urine freely. On the 28th, the tension and pain were increased; and not having had a stool since the operation, she took a laxative medicine, which had effect. On the 29th, the dressings were removed, having been loosened by a beginning suppuration; she passed the day rather better. On the 30th, the discharge from the fore was considerably increased, and the pain and tension diminished; one of the ligatures came away. From this time the fore continued to discharge freely for a few days, when both the other ligatures came off, the patient feeling extremely happy at the thoughts of having got rid of so disagreeable a load, and with the prospect of the fore speedily healing; nor were her expectations disappointed, it gradually lessened in size, and by the 21st of April was completely healed, the labia, &c. assuming their natural appearance. She was discharged the infirmary before the end of the month.

"It must have occurred to those who have extensive practice in midwifery, to have observed children born with a peculiar conformation of the clitoris; instances where it has appeared considerably elongated, and covered with a large præputium, have given rise to mistakes of the sex of an infant, or have rendered it a doubt to which the child belonged. Specimens of this sort are to be seen in all anatomical collections, as well as examples of extraordinary enlargements of it in adults. And histories of such cases are to be met with in Riolanus, Bartholine, Schurigius, and others, some of whom believe the part endowed with a similar power to the penis in men. It would be of importance to discover whether any artificial means, or excess of venery, was capable of increasing its size; in the case above related, I could not discover that at any period of its enlargement it had the power of erection, or was converted to any improper purpose.

"It appears that an enlarged clitoris is almost endemial in some countries, particularly Egypt and Darfur, where the excision of it is very commonly practised, and the operation is performed a little before the period of puberty, or at about the age of eight or nine years. This custom is mentioned by Strabo, and also by Albucasis, in his 7th chapter, who observes, that every parent knows when a child has these parts longer than ordinary, and cut and burn them off while girls are very young. De Graaf was also acquainted with this, and gives his approbation of the operation as highly necessary as well as decent, "*Estque hujus partis chirurgia orientalibus tam necessaria quam decora.*" And Mr. Brown, our countryman, the celebrated traveller into Africa, tells us, that thirteen or fourteen young females underwent the operation in a house where he was. It was performed by a woman, and some of them complained much of the pain both at and

after it. They were prevented from locomotion, but permitted to eat meat; the parts were washed every twelve hours with warm water, which profuse suppuration rendered necessary; at the end of eight days the greater part were in a condition to walk, and liberated from their confinement; three or four of them remained under restraint till the thirteenth day. The reflection that naturally arises from this fact is, that there is no hazard in performing the operation at a very early period; and the success attending the extirpation of the prodigious one in the case I have related, is a sufficient evidence of the safety of an operation at a more advanced stage of the disease."

Figure 4, in Plate I. shews the upper, and fig. 5 the under, sides of the tumor; the weight of which was 28 ounces.

4. In the same work we find the following account of a *lufus naturæ*, by Mr. Alderfon, of Hull, which merits a place in this chapter.

"Mrs. ——— informed me," says Mr. A. "that she had not been able to give suck to her three last children, because, when the draught came into her breasts, the milk *flowed out under her arms*. On examination, I found the *mammæ* small, and under the fold or lamella of the pectoral muscle on each side, in the fore part of the axilla, a large expanded gland, or small mamma, perfectly well defined, with a head or nipple like a small wart, formed by the *tubi lactiferi*; three of which were very distinctly observable upon pressure, producing a stream of pure milk the size of a crow quill.

"These glands uniformly became tumid, and filled at the same time with the *mammæ*, and as uniformly poured out the secreted fluid before the breast suffered any considerable distension. Whenever the child was put to the breast, the milk ran in a constant stream from these glands.

"She did not observe this peculiar conformation till after her second lying-in."

5. Cit. Larrey, of Paris, performed an operation upon a young woman, about twenty-five years of age, whose genital parts were imperforate. The skin was continued on the pubis, leaving only a small aperture for the passage of the urine. She had never menstruated. He opened the external skin, which covered the pubis, and thus restored the parts to their natural state.

6. The following instances of the *præternatural size of the nymphæ*, are related by Smellie.

"I was called," says he, "to a young woman, who, by a fall from an hay-loft, upon a post below, had bruised the *labia pudendi*: besides an inflammation of the parts, I found one of the *nymphæ* so præternaturally large, as to hang down three inches without the labia. Her mother was surprised to see such an extraordinary excrescence, which the daughter had concealed from

her knowledge, and desired me, after the inflammation was removed, to remedy, if possible this inconvenience, as the girl was to be married in a little time. The excision was accordingly performed with great ease, as that part next the labia was very thin. The patient could recollect no cause to which this excrescence might be owing; but said she perceived it when she was sixteen years of age; that it gradually enlarged, and frequently gave her much uneasiness, by itching, and being subject to pricking pains. The outward edge and extremity was about an inch thick, extending two inches from the upper to the under part. The cause did not seem to have been venereal, but merely a swelling of the glands."

Speaking of a second case of the like kind, he says, "I was present at the extirpation of the nymphæ, which were excessively large and pendulous in a woman, who alleged, that the disorder proceeded from a venereal taint, of which she had been formerly cured."

Mauriceau, in observation 313, mentions his taking off, by ligature, an elongation of the *caruncule myrtiformes*.

7. This is followed by a case of obstructed *hymen*.

"A woman," says the doctor, "brought her daughter from the country for my advice. She had been a year married, and, in her own opinion, was in the eighth month of her pregnancy, although she was regular in the discharge of the catamenia. She affirmed, she had frequently felt the motion of the child, and was grown much bigger than her ordinary size. I examined the abdomen, but could not feel the circumscribed tumor of the uterus: indeed she was corpulent, so that the belly was large, though soft. I then directed her to lean forwards on the back of a chair, and seating myself behind, attempted to examine the uterus by the vagina, when I found the entrance obstructed.

"Through the persuasion of her mother, she consented to have the parts inspected; and being laid supine upon a couch, I separated the labia, when I perceived the hymen in the form of a crescent, from the middle of which proceeded a kind of ligament, attached to the lower part of the *meatus urinarius*, leaving a passage on each side, capable of admitting a probe into the vagina, and of yielding passage to the menstrual discharge, but effectually obstructing the introduction of the penis. Having snipt this attachment asunder, I introduced my finger into the vagina, and felt the uterus rising up before it, as in the unimpregnated state, without any sensible weight or stretching of the part. From this circumstance I concluded, and assured her, she was not with child; then introduced a large thick tent, dipped in red wine, and secured it with a bandage. After this operation she soon became pregnant, and has since been delivered of several children."

Hildanus (Centuria 3, Observ. 60) gives three examples, in which the vaginal passage was shut up by a membrane.

The first was a girl of sixteen, who was once a-month seized with violent pains in her belly, faintings, head-achs, and sometimes epileptic fits, which, on a copious bleeding at the nose, vanished, and did not return till the next period.

She had refused several advantageous matches, in consequence of these infirmities, which being communicated to our author, he inspected the pudenda, and, finding the vagina shut up by a strong membrane, he directed an incision to be made; but the young woman, being terrified at the thoughts of the knife, refused to submit to the operation.

The second was a young woman of Paris, who, being married, could not admit the embraces of her husband; and he, on that account, sued for a divorce; but as she suspected herself with child, several eminent surgeons examined the parts, and found the entrance to the vagina shut up by a strong callous membrane, in which were small openings, sufficient to allow the menstrual discharge.

This membrane being dilated, and proper pessaries and applications used to keep the passages open, the husband was satisfied, and the woman was, in six months, safely delivered of a full-grown child.

Mauriceau likewise (Observation 489) gives an account of a woman's having conceived, and been delivered of a child, though the hymen had not been broken in coition.

The third case of Hildanus, nearly resembles the following, communicated by Dr. D. Monro.

8. "A girl of fifteen had all the symptoms of the menstrual discharge, which continued to seize her regularly every month, though nothing was evacuated from the uterus. When she attained the age of nineteen, her belly was considerably swelled, and finding a large tumor in her pudenda, she applied for relief to his father, who immediately perceived it was occasioned by an imperforated hymen. This he forthwith opened with a lancet, which was instantly followed by a discharge of about three pints and a half of blood, of the consistence of butter-milk, and colour of grumous blood, though without the least smell or foetor: about half a pint of the same fluid was evacuated before morning, and the girl did well."

The late Dr. Macaulay met with the following case:

9. "About seven years ago," says he, "I was desired to visit young woman, about nineteen years of age, of a large make, and full breasted, who was in exquisite pain, and could not make water. Her belly being very much swelled, her pulse feverish, and her pains exactly resembling those of labour, I ordered her to be bled, a clyster to be injected, and prescribed some other

medicines. Next morning I was informed more circumstantially of her illness by her mother, who said, she had been complaining for some months, though pretty well at intervals; but now there was something forcing down the genitals. In consequence of this information, I examined her in a cursory manner, being then in a hurry. I found the belly very much distended, and, endeavouring to pass one finger into the vagina, felt what I then took to be the membranes, with the waters pushing pretty low down.

"From this circumstance I concluded she was in labour, and left her for the present, after having intimated to the mother, that a little time would in all probability determine the nature of her daughter's complaint. In my return I called again, and found the girl in exquisite agony, though matters were not at all advanced during three hours which had elapsed in my absence.

"Then it was I thought of enquiring whether she had ever undergone the menstrual discharge; when being answered in the negative, I examined more carefully, and found what I had mistaken for the membranes, was no other than the imperforated hymen, protruded by some fluid as far as the external labia.

"Having, upon this discovery, signified the only and certain means of cure to the patient and her mother, and they consenting to the operation, I divided the thick, strong membrane with a knife, and evacuated, as near as I can guess, two quarts of thick, black blood. As it flowed out, and the great pressure was removed from the neck of the bladder, the urine was discharged, and the poor girl said she found herself in heaven.

"She was afterwards seized with shiverings and faintings, for which I prescribed cordials and the bark, upon a presumption that the pangs, from the long-continued pressure, might be disposed to mortification.

"She recovered very fast, and was married in six months after the aperture was made."

10. Ruysch (tom. i. Observ. 22) says, he was called to a woman in labour, whose hymen was entire, and prevented the delivery of the child, by whose head it was distended. An incision being cautiously made, he perceived another thick membrane further in the vagina, which being also opened, the woman was delivered.

Saviard (Observ. 4) relates the case of a young lady whose vagina was obstructed by a membrane, which being cut, two pints of fetid matter, of the consistence of lees of wine, were discharged.

He likewise gives an instance of the entrance to the vagina being so much contracted by the indiscreet use of astringents, that a probe could hardly be admitted: but this opening was enlarged upon a director, so as to admit a tent an inch and a half in circumference.

11. The following is a case in which the ovum became diseased, and was entirely filled with small hydatids. It is related by Mr. Home, in the Transactions of the Society for Medical and Chirurgical Improvement.

"There are many cases mentioned of the placenta losing its natural structure," says Mr. Home, "and becoming a congeries of hydatids; several of these have been published; but in all the instances on record, as far as I am acquainted with them, the patient had miscarried, and the placenta was examined after being separated from the uterus, so that the disease could not be exactly ascertained.

"The following case, in consequence of its melancholy termination, afforded an opportunity of the parts being examined in their natural situation, and of determining precisely the seat of the disease.

"Elizabeth Yeoman, thirty years of age, was delivered of her ninth child on the 22d of December, 1797, and recovered from her lying-in in three weeks, as she had usually done after former labours. She continued in perfect health till the 1st of August, 1798, when a flooding came on, which was supposed to be an uncommon flow of menstrual discharge; this continued for ten days; it created an alarm, and an accoucheur was consulted.

"He found, upon enquiry, that she had not menstruated before for twelve weeks, and there was an evident enlargement of the abdomen; he had therefore no doubt of her being pregnant, and thought she had advanced to the third month. From this explanation of the case, the present hæmorrhage appeared to be a flooding preceding abortion.

"The ordinary means for restraining the flooding were used, and on the 14th it had entirely stopped. She was now attacked by a vomiting, attended with a hot skin, and a pulse at 109. These symptoms were relieved by a gentle emetic, and saline draughts with rhubarb.

"On the 20th there was a return of the vomiting, with spasms over the whole abdomen, and the general bulk of the belly became much increased; these symptoms resisted all means used for their relief, and she died on the 22d in the evening.

"Upon inspecting the body after death, the womb appeared to be of the size that it usually is five months after conception. The os tincæ was a little dilated, receiving with tolerable ease the end of the finger.

"A longitudinal incision was made through the anterior part of the uterus, extending from the os tincæ to the fundus; this incision was continued through the membranes of the ovum, but no cavity was found, no foetus presented itself, and every part was occupied by an infinite number of hydatids of different sizes, from that of a pin's head, to the size of a common grape,

scarcely any of them being so large as a full-sized grape. They were attached to the nearest surface, and to every part of the amnion equally.

“ Upon separating the membranes composing the ovum from the uterus, which was easily done, the situation of the placenta was readily ascertained ; it was near the os tincæ on the posterior surface of the uterus, and was unattached, a separation having taken place during the patient’s life-time ; this had occasioned the flooding, which gave the first alarm respecting her safety. The surface next the uterus had not its usual shaggy appearance, but was nearly smooth ; it scarcely projected beyond the membranes of the ovum, and was about two inches in diameter.

“ The mafs of hydatids which filled the ovum were all connected with one another ; were very tender, and readily broke down when handled. This mafs of hydatids was very different from those met with in the liver, which are spherical, and those with long necks and heads, found in the brain of sheep ; they were connected to the surface of the membrane, and to those hydatids with which they were united, by short pedicles or necks. To ascertain whether there was any appearance of a fœtus, I examined the whole with minute attention, but could not perceive the smallest remains either of one, or of a funis ; nor could I on the inner surface distinguish any thing like the ordinary structure of the placenta.

“ The hydatid structure of the placenta, as a disease to which that part is liable, is, I believe, very well known, and specimens of it are preserved in different collections of anatomical preparations. My attention in this case was directed to the investigation of the disease, and from the facts I have stated, it does not appear to be a change in the structure of the placenta, but a general affection of the amnion. When this disease takes place, the natural healthy actions for the support of the fœtus are so much impeded, that its growth is arrested. This evidently happened in a case published with an elegant engraving of the placenta and fœtus, by Dr. Denman ; and when the patient does not early miscarry, the fœtus disappears ; and in all the instances where miscarriage has taken place in a more advanced stage of the disease, I believe no fœtus has been found.”

CHAP. VIII. OF THE PLACENTA.

A CORRECT knowledge of the structure of the placenta is so important, that we can by no means omit the following remarks on it by that great anatomist Mr. Hunter*.

* This paper was read at the Royal Society ; but as the facts had, before that time, been given to the public, it was not published in the *Philosophical Transactions*.

"The connection," says he, "between the mother and foetus in the human subject, has in every age in which science has been cultivated, called forth the attention of the anatomist, the physiologist, and even the philosopher; but both that connection and the structure of the parts which form the connection, were unknown till about the year 1754."

"The late indefatigable Dr. MacKenzie, about the month of May, 1754, when assistant to Dr. Smellie, having procured the body of a pregnant woman, who died undelivered at the full term, had injected both the veins and arteries with particular success; the veins being filled with yellow and the arteries with red.

"Having opened the abdomen, and exposed the uterus, he made an incision into the fore part, quite through its substance, and came to what seemed to be an irregular mass of injected matter. The appearance being new, he proceeded no further, and greatly obliged me, by desiring my attendance to examine parts, in which the appearances were so uncommon. The examination was made in his presence, and in the presence of several other gentlemen whose names I have now forgotten; but I have reason to believe that some are settled in this country, who I hope will have an opportunity of perusing this publication.

"I first raised, with great care, a part of the uterus from the irregular mass, and in doing this, observed regular pieces of wax passing obliquely between it and the uterus, which broke off, leaving part attached to that mass; and on attentively examining the portions towards the uterus, they plainly appeared to be a continuation of the veins passing from it to this substance, which proved to be the placenta.

"I likewise observed other vessels, about the size of a crow-quill, passing in the same manner, although not so obliquely; these also broke upon separating the placenta and uterus, leaving a small portion on the surface of the placenta; and on examination they were discovered to be continuations of the arteries of the uterus. My next step was to trace these vessels into the substance of what appeared placenta, which was first attempted in a vein; but that soon lost the regularity of a vessel, by terminating at once upon the surface of the placenta in a very fine spongy substance; the interstices of which were filled with the yellow injected matter. This termination being new, I repeated the same kind of examination on other veins, which always led me to the same terminations, never entering the substance of the placenta in the form of a vessel. I then examined the arteries, tracing them in the same manner towards the placenta, and found that, having made a twist, or close spiral turn upon themselves, they were lost on its surface. On a more attentive view, I perceived that they terminated in the same way as the veins. For opposite to the mouth of the artery, the spongy substance of the pla-

centa was readily distinguished with the red injection intermixed.

" Upon cutting into the placenta I discovered, in many places of its substance, yellow injection, in others red, and in many others these two colours mixed. The substance of the placenta, now filled with injection, had nothing of the vascular appearance, nor that of extravasation, but had a regularity in its form, which shewed it to be naturally of a cellular structure, fitted to be a reservoir for blood.

" I perceived likewise, that the red injection of the arteries (which had been first injected) had passed out of the substance of the placenta into some of the veins leading from the placenta to the uterus, mixing itself with the yellow injection; and that the spongy chorion, called the decidua by Dr. Hunter, was very vascular, its vessels going to and from the uterus being filled with the different-coloured injections.

" After having considered these appearances, it was not difficult for me to determine the real structure of the placenta and course of the blood in these parts; but the company, prejudiced in favour of former theories, combated my opinion; and it was even disputed, whether or not these curling arteries could carry red blood. After having dissected the uterus, with the placenta and membranes, and made the whole into preparations, tending to shew the above facts, I returned home in the evening, and communicated what I had discovered to my brother, Dr. Hunter, who at first treated it and me with good-humoured raillery; but on going with me to Dr. M^cKenzie's he was soon convinced of the fact. Some of the parts were given to him, which he afterwards shewed at his lectures; and probably they still remain in his collection.

" Soon after this time Dr. Hunter and I procured several placentæ, to discover if, after delivery, the termination of the veins, and the curling arteries, could be observed: they were discernible almost in every one; and by pushing a pipe into the placenta, we could fill not only its whole substance, but also the vessels on that surface which was attached to the uterus, with injection.

" The facts being now ascertained, and universally acknowledged, I consider myself as having a just claim to the discovery of the structure of the placenta, and its communication with the uterus; together with the use arising from such structure and communication, and of having first demonstrated the vascularity of the spongy chorion.

" It is not necessary at present to enter into the various opinions which have been formed on this subject; because, whatever they were, they could not be just, the structure of the parts not being known: neither shall I endeavour to give a complete description of all the parts immediately connected with uterine

gestation, but content myself with describing the structure of the placenta, as far as it has any relation to the uterus and child; and with explaining the connection between the two; leaving the reader to examine what has been said upon this subject by others, especially by Dr. Hunter, in that very accurate and elaborate work which he has published on the Gravid Uterus, in which he has minutely described, and accurately delineated the parts, without mentioning the mode of discovery.

“The necessary connection subsisting in all animals between the mother and the foetus, for the nourishment of the latter, as far as I know, takes place in two ways. In some it is continued, and subsists through the whole term of gestation; in others the union is soon dissolved; but an apparatus is provided, which at once furnishes what is sufficient for the support of the animal till it comes forth.

“The first of these are the viviparous, the second the oviparous animals, both of which admit of great variety in the mode by which the same effect is produced*. In the first division is included the human species, which alone will engage our present attention. But before I describe this connection, it may be necessary that the reader should understand my idea of generation: I shall therefore refer him to what I have said upon that subject in my account of the free martin.

“In the human species, the anatomical structure of the mother and embryo, relative to the foetation, being well known, it will only be necessary fully to describe the nature of the connection between them, which is formed by the intermediate substance called placenta. For this purpose we must first consider the placenta as a common part; next, the uterus as belonging to the mother, yet having an immediate connection with the placenta, from which the nourishment of the foetus is to be derived; which will lead us lastly to a consideration of those peculiarities of structure, by means of which the foetus is to receive its nourishment, and which likewise constitutes its immediate communication with the placenta. It is the structure of this intermediate substance, and its connection with the child and the uterus of the mother, which have hitherto been so little understood; and without an accurate knowledge of which, it was impossible any just idea could be formed of its functions.

“The placenta is a mass lying nearly in contact with the uterus; indeed it may in some degree be said to be in continuity

* It may be remarked here, that the oviparous admit of being distinguished into two classes, one where the egg is hatched in the belly, as in the viper, which has been commonly called viviparous; the others, where the eggs have been first laid and then hatched, which is the class commonly called oviparous, such as all the bird tribe; and many others, as snakes, lizards, &c.

with a part of its internal surface. On the side applied to the uterus the placenta is lobulated, having deep irregular fissures. It is probable, from this structure of the placenta, that the uterus has an intestine motion while in the time of uterine gestation; not an expulsive one, which those lobes of the placenta allows of; but all these lobes are united into one uniform surface on that surface next to the child, where its umbilical vessels ramify. When we cut into the placenta, its whole substance appears to be little else than a net-work, or spongy mass, through which the blood-vessels of the fœtus ramify, and indeed seems to be principally formed by the ramifications of those vessels; it exhibits hardly any appearance of connecting membrane; but we cannot readily suppose it to be without such a membrane, as there is so much regularity in its texture. The cells, or interstices of each lobe, communicate with one another, even much more freely than those of the cellular membrane in any other part of the body; so that whatever fluid will pass in at one part, readily diffuses itself through the whole mass of lobe; and all the cells of each lobe have a communication at the common base.

“ This structure of the placenta, and its reciprocal communication with the two bodies with which it is immediately connected, form the union between the mother and fœtus for the support of the latter. Prior to the time I have mentioned above, anatomists seem to have been wholly unacquainted with the true structure of placenta. By notes taken from Dr. Hunter's lectures, in the winter 1755-6, it appears that he expressed himself in the following manner: “ The substance of the placenta is a fleshy mass, which seems to be formed entirely of the vessels of the umbilical rope.” In another part, mentioning the appearances when injected, he says, “ and upon a slight putrefaction coming on, you will find the whole appearing like a mass of vessels: then,” says he, “ there is always a white uninjected substance between the vessels; but whether lymphatics or what I cannot tell.” This uninjected substance, mentioned by Dr. Hunter, is what forms the cellular structure.

“ The placenta seems to be principally composed of the ramifications of the vessels of the embryo, and may have been originally formed in consequence of those next to the uterus laying hold, by a species of animal attraction, of the coagulable lymph which lines the uterus. It might take place in a manner resembling what happens when the root of a plant spreads on the surface of moist bodies; with this difference, that in the present instance the vessels form the substance through which they ramify, as in the case of granulations.

“ At the time, or perhaps before the female feed enters the uterus, coagulable lymph, from the blood of the mother, is thrown out every-where on its inner surface, either from the stimulus of

impregnation taking place in the ovarium, or in consequence of the seed being expelled from it. But I think the first the most probable supposition; for we find in extra-uterine cases, that the decidua is formed in the uterus, although the ovum never enters it; which is a proof that it is produced by the stimulus of impregnation in the ovarium; and that it is prior to the entrance of the ovum into the uterus. When it has entered the uterus, it attaches itself to that coagulable lymph, by which, being covered and immediately surrounded*, there is formed a soft pulpy membrane, the decidua, which, I believe, is peculiar to the human species, and to monkeys, I never having found it in any other animal. That part which covers the seed or foetus, where it is not immediately attached to the uterus, and likewise forms a membrane, was discovered by Dr. Hunter, and is by him called decidua reflexa†. The whole of this coagulable lymph continues to be a living part for the time; the vessels of the uterus ramify upon it; and where the vessels of the foetus form the placenta, there the vessels of the uterus, after passing through the decidua, open into the cellular substance of the placenta, as before described. As this membrane lines the uterus and covers the seed, it is stretched out, and becomes thinner and thinner, as the uterus is distended by the foetus growing larger, especially that part of it, called decidua reflexa, which covers the foetus; as there it cannot possibly acquire any new matter, except we could suppose that the foetus assisted in the formation of it. This membrane is most distinct where it covers the chorion; for where it covers the placenta it is blended with coagula in the great veins that pass obliquely through it, more especially all round the edge, where innumerable large veins come out; but the chorion and decidua can be easily distinguished from one another, the decidua being less elastic.

“ From the description now given. I think we are justified in supposing the placenta to be formed entirely by the foetus, which is further confirmed by extra uterine cases, and by the formation of the membrane in the egg; there being no living organic part to furnish them; and the decidua we must suppose to be a production of the mother; of both which, the circumstance of the

* This is somewhat similar to another operation in the animal œconomy. If an extraneous living part is introduced into any cavity, it will be immediately enclosed with coagulable lymph. Thus we find worms enclosed, and hydatids, that have been detached, afterwards enclosed; but in those cases this is a consequence of the pressure of the extraneous body; whereas in the uterus it is preparatory.

† The placenta is certainly a foetal part, and is formed on the inside of the spongy chorion, or decidua. How far the decidua reflexa is a uterine part, we do not know; if it is, then the ovum must be placed in a doubling of the coagulum, which forms the decidua: but if the ovum is attached to the inside of the decidua, then the decidua reflexa is belonging to the foetus.

decidua passing between the placenta and uterus, may be considered as an additional proof. For if the vessels of the foetus branched into a part of the decidua, we might conceive the whole placenta to be formed from that exudation; the portion of it, where the vessels branched, like the roots of a plant, becoming thicker than the rest, and forming the placenta. If that were the case, this membrana decidua, when traced from the parts distinct and at a distance from the placenta, should be plainly seen passing into its substance all round at the edges, as a continuation of it. But the fact is quite otherwise; for the decidua can be distinctly traced between the placenta and uterus, hardly ever passing between the lobuli: the vessels of the foetus never entering into it, and, of course, none of them ever coming in absolute contact with the uterus. But what may be considered as a still stronger proof that the decidua is furnished by the uterus, is, that in cases of extra-uterine conception, where the foetus is wholly in the ovarium or Fallopian tube, we find the uterus lined with the decidua, having taken on the uterine action; but no placenta, that being formed by the foetus, and therefore in the part which contained it.

"The vessels of the foetus adhering, by the intervention of the decidua, to a certain portion of the uterus when both are yet small, as the uterus increases in every part of its surface during the time of uterine gestation, we must suppose that this surface of adhesion increases also; and that by the elongation of those vessels of the foetus in every direction, this substance should likewise be increased in every direction: this is in some degree the case, yet the placenta does not occupy so much of the enlarged surface of the uterus as one at first would expect.

"The vessels of the uterus in the time of gestation are increased in size nearly in a proportion equal to the increased circumference of the uterus, and consequently in a proportion much greater than the real increase of its substance. But when we reflect that the uterus ought not to be considered as hollow, but as a body nearly solid, on account of its contents, which derive support from this source, and that a much greater quantity of blood must necessarily pass than what is required for the support of the viscous itself, we cannot be at a loss to account for the greatly increased size of its vessels.

"The arteries which are not immediately employed in conveying nourishment to the uterus, go on towards the placenta, and proceeding obliquely between it and the uterus, pass through the decidua without ramifying; just before they enter the placenta, after making two or three close spiral turns upon themselves, they open at once into its spongy substance without any diminution of size, and without passing beyond the surface, as above described. The intention of these spiral turns would appear to be that of

diminishing the force of the circulation in the vessels as they approach the spongy substance of the placenta, and is a mechanism calculated to lessen the quick motion of the blood in a part where a quick motion was not required. These curling arteries at this termination are in general about half the size of a crow's quill, and sometimes larger.

"The veins of the uterus appropriated to bring back the blood from the placenta, commence from this spongy substance by such wide beginnings, as are more than equal to the size of the veins themselves. These veins pass obliquely through the decidua to the uterus, enter its substance obliquely, and immediately communicate with the proper veins of the uterus. The area of these veins bear no proportion to their circumference, the veins being very much flattened.

"This structure of parts points out at once the nature of the blood's motion in the placenta; but as this is a fact but lately ascertained, a just idea may perhaps be conveyed by saying, that it is similar, as far as we yet know, to the blood's motion through the cavernous substance of the penis.

"The blood, detached from the common circulation of the mother, moves through the placenta of the foetus; and is then returned back into the course of the circulation of the mother to pass on to the heart.

"This structure of the placenta, and its communication with the uterus, leads us a step further in our knowledge of the connection between the mother and foetus; the blood of the mother must pass freely into the substance of the placenta, and the placenta most probably will be constantly filled; the turgidity of which will assist to squeeze the blood into the mouths of the veins of the uterus, that it may again pass into the common circulation of the mother; and as the interstices of the placenta are of much greater extent than the arteries which convey the blood, the motion of the blood in that part must be so much diminished as almost to approach to stagnation; so far and no further does the mother appear to be concerned in this connection.

"The foetus has a communication with the placenta of another kind. The arteries from the foetus pass out to a considerable length, under the name of the umbilical arteries, and when they arrive at the placenta, ramify upon its surface, sending into its substance branches which pass through it, and divide into smaller and smaller, till at last they terminate in veins; these uniting, become larger and larger, and end in one, which at last communicates with the proper circulation of the foetus.

"This course of vessels, and the blood's motion in them, is similar to the course of the vessels and the motion of the blood in other parts of the body.

"In addition to what I have said about the connection between the mother and child, in natural cases, it is necessary to observe,

that though the uterus is appropriated for the support of the foetus, as best fitted for that purpose, yet it is not essential to its growth; as any other part in which the child may be situated, is capable of receiving the same provisional stimulus for supplying it with nourishment as the uterus; and this, I believe, is peculiar to generation. This prompts me to make the following observations upon the different situations of the foetus in extra-uterine cases which are extraordinary, happen seldom, and when they do occur, are often attended with so many hindrances to critical investigation, as hardly to allow of thorough or satisfactory information.

“Such cases are readily distinguished from natural ones, by the uterus being found entire and empty; and they may be divided into three different kinds, according to the situation of the foetus in the ovary, Fallopian tube, or in the cavity of the abdomen.

“From a want of the appearances which usually attend the natural process, the investigation of extra-uterine cases is attended with considerable difficulty. For where uncommon actions have taken place, as well as in cases of disease, the natural texture of the parts is very much altered, and appears to be lost; not only by the parts themselves being enlarged, but from having a great deal of new matter superadded to them, by which they lose their natural distinctness, and become less fitted for examination than those which only have a relation to them, and which preserve their natural actions peculiar to that state.

“From these difficulties, and a want of accuracy in those who made the examination, it is not at present clear, with respect to many of the extra-uterine cases upon record, whether they were ovarian cases, Fallopian-tube cases, or abdominal cases; when, if they had been acquainted with the principle in which they differ, nothing could have been more easy than to distinguish them. It is not difficult, perhaps, at the very first view, to distinguish an abdominal case from either of the two first: for if the ovaria and Fallopian tube are entire, natural, and can be well distinguished to be as those parts are when the circumstances are natural, then we may be sure it is an abdominal case. Appearances, however, may not in all cases be distinct; but the parts may adhere, or be otherwise rendered so obscure, that an abdominal case might be confounded with either of the two first; therefore it is essential to have a characteristic difference established between the two first, and the third.

“The invariable difference between the two first, and the abdominal cases, will be in the vessels by which the child is nourished; for the arteries and veins belonging to the part in which the child is contained must be enlarged; which, being the increase of a natural part, will be readily ascertained, and the nature of the case as readily determined. We may lay it down as a principle, that when the spermatic artery, and veins of either

side, are enlarged in an extra-uterine case, that the foetus is in the ovarium or Fallopian tube; since there are no other blood-vessels which supply these parts: and if any other system of vessels, as the mesenteric, are increased in size, while the spermatic are in a natural state, we may, with equal certainty, conclude the foetus to be contained in the general cavity of the belly. As this becomes the great criterion, and as the situation and time will not always allow very nice investigation on the spot, where the person employed has an opportunity of taking away the parts concerned, I would advise his taking along with them the aorta and vena cava, cut through above the origins of the spermatic vessels."

Of the delivery of the placenta, under various circumstances of labour, we purpose to speak in a future chapter.

CHAP. IX. OF THE DISEASES OF PREGNANCY.

AFTER conception, a remarkable change is soon produced in the genital system. This is the source from whence arise different symptoms that are however liable to considerable variation, not only in the constitution of different women, but in the same woman in different pregnancies, and at different periods of the same pregnancy.

Pregnancy, though a natural alteration of the animal economy, which every female seems originally formed to undergo, and hence not to be considered as a state of disease, occasions, however, sooner or later, in many women, various complaints, which evidently depend on it as a cause.

Diseases incident to the pregnant state may be considered, either, 1. As arising from sympathy in the early months; or, 2. As depending on the stretching and pressure of the uterus, towards the more advanced stages.

I. Though the former of these complaints are generally to be accounted for from other causes than that of plethora; yet, in many constitutions, a certain plethoric disposition in the early months of pregnancy seems to prevail in the vascular system: and therefore, though many inconveniences may ensue from a too frequent, a too copious, or an indiscriminate use of venæsection; yet, if prudently and judiciously employed, abortion by this means will not be endangered, as some late authors have alleged; but, on the contrary, on many occasions, a seasonable bleeding will be attended with the most beneficial and salutary effects.

In young women, suddenly affected with severe sickness and loathing, febrile commotion, head-ach, vertigo, and other symptoms of breeding, more especially in full sanguinous habits, besides a spare light diet and suitable exercise, recourse must be had

to proper evacuations, the chief of which is venæsection : this may be safely performed at any time of gravitation, and occasionally repeated according to the urgency of the symptoms ; small bleedings, at proper intervals, are preferable to copious evacuations, which in early pregnancy ought always to be carefully guarded against.

When the stomach is loaded with putrid bile or acrid saburra, the offensive matter should be discharged by gentle vomits of ipecacuan, or of infusions of chamomile flowers. The violent efforts to retch and vomit, and the commotions thence excited, which often occasion the expulsion of the fœtus, will by this means frequently be removed, or in most cases greatly diminished. During the term of breeding, the state of the belly must be also attended to. When laxative medicines become necessary, those of the mildest and gentlest kind should be administered.

In women liable to nervous complaints, where the stomach is weak, and the sickness violent and continued, the patient should be put on a course of light, aromatic, and strengthening bitters ; such as infusions of bark, columbo, &c. and her diet, air, exercise, company, and amusement, should be regulated : in order to settle the stomach, and lessen the sensibility of the system, opiates will often happily succeed, when every other remedy fails.

The following case of vomiting in pregnancy, successfully treated by Dr. Vaughan of Leicester, appears to deserve attention.

He describes it to be a case wherein nausea and vomiting, as attendants on pregnancy, occurred in a much greater degree than usual, where these symptoms lasted much longer, and when the consequences were of the most serious kind. He also informs us of the means which were employed to obviate them, and which soon proved effectual.

“ A lady of a very delicate frame, with dark hair, much subject to nervous affections, found herself, in the 31st year, for the second time pregnant. The nausea and vomiting, which in that state so frequently occur in a morning, in this instance tormented her not only in a morning, but during a greater part of the day ; and although she was now entered upon her seventh month, these were in no respect abated, notwithstanding she had employed a variety of remedies which had been recommended to her. It was in this state of the lady’s pregnancy,” says Dr. Vaughan, “ that I was first called to see her. I found her much emaciated, melting away under profuse sweats (the weather was very warm) whilst in bed ; to which a reduction of her strength confined her almost altogether. If she attempted to sit up, she was immediately fainting ; and if she was disposed to sleep, she was persecuted with such horrid dreams, that it was her earnest request to her attendants to wake her as often as they found her asleep. During this time, the quantity of food taken in 24 hours

was inconsiderable indeed ; and though inconsiderable, was immediately rejected. The appetite was allowed to point at any kind of food, however singular (and sometimes, we know, in this case singular enough it is), which it was my intention she should be indulged with ; but this was in vain. Once or twice a very small bit of broiled bacon was swallowed, and staid longer than any thing ; but the quantity was too trifling to admit an expectation that her exhausted frame could derive support from this. The most insipid, as well as the most poignant food was placed before her ; but without exciting an inclination on her part to partake of them. We did not succeed any better by placing a variety of fruits in the same situation ; if any was swallowed, it was immediately rejected. At times she found herself much annoyed by a large quantity of wind being confined in her stomach and bowels. By the importunity of her friends, she was now and then prevailed upon to take a small spoonful of burnt brandy for this last complaint ; which generally gave her relief. Her thirst and heat were inconsiderable ; her pulse beat under one hundred strokes in a minute. Under all these miserable circumstances there were no appearances of a miscarriage ; on the other hand, the child gave the most active signs of being alive and well. The profuse sweating, with the terrible dreams, were not of more than ten days' standing ; but the vomiting had commenced at the earliest period, and instead of any abatement, it had manifestly increased to the pitch it was now arrived at. Her apothecary had administered anti-emetics of the most established character, and had been careful to prevent any accumulation of feces in the intestinal tube, by the occasional interposition of clysters ; but without gaining the least positive advantage. In this emaciated state, worn down with sleepless nights, exhausted by profuse sweats, terrified with horrid dreams, and teized with perpetual vomiting, I found this poor lady ; and I will freely confess was much puzzled to form a plan of treatment which should satisfy myself, and prove of use to her. Indeed I had no expectation that medicine was more likely to remain on the stomach than food and opium. Fixed air, with other anti-emetics, had been already tried, but in vain. It struck me that the first point to gain was that of enabling the stomach to receive and retain food ; for if this could be done, I had no doubt but her other symptoms would gradually diminish : the difficulty, however, appeared to be great. I was willing to hope that much of this complicated evil was founded on habit ; and on this ground I took my stand. I at length determined to begin with abandoning every attempt to convey nourishment into the stomach by the mouth. It was my direction, that she should not on any account eat or drink, or at least not swallow, any part either in fluids or solids. But although I gave up this avenue, in order to allow

the stomach to remain in a state of quietude, unsolicited by stimulus of any kind, except its natural contents; yet I did not mean to leave the system unfurnished, but, on the contrary, to support it by a mild nourishment thrown in by the intestinal tube, and by the inhalents of the skin. The lower bowels were first emptied, by a clyster of mutton broth: this being accomplished, a pint of new milk, just taken from the cow, with 20 drops of laudanum, was ordered to be injected as a clyster, morning and evening; and every endeavour to retain it was to be employed. Four ounces of bark were directed to be boiled in three gallons of skimmed milk: and the feet and legs, being first well rubbed with a warm cloth, were to be immersed in this warm pediluvium for an hour, three or four times a-day; an anodyne liniment was also applied to the region of the stomach. This comprehended the whole of the medical treatment she was then submitted to. This method was pursued steadfastly for three days with manifest advantage; the milk was entirely absorbed morning and evening; her sweats were considerably diminished; she had gained some strength, and had been refreshed with four hours' sleep the last night, without being haunted with those terrifying dreams which had been the cause of so much distress. On the fourth day from her beginning upon this plan, she enquired of the servant if there was any cold meat in the house; expressing a wish to have some brought to her. A plate full of cold boiled beef was immediately produced, which she eat with great pleasure, and drank with it a pint of small beer. This never gave her the least annoyance. She continued from that time to take her food well, went her full time, and was brought to bed of a healthy child, which is now living. A light infusion of the bark, after this, was ordered for her, with a gentle aperient occasionally; and this was all that was wanting.

"Every body conversant with the animal economy, knows how easily a habit is formed, and how much the system is influenced by it. The reader, however, shall determine for himself. The fact, as I have related it, is not less a fact, although I may have failed in the explanation of it."

• 2. *Heart-burn and diarrhœa*, common symptoms of breeding, or of pregnancy, must be treated pretty much as at other times. Both complaints chiefly depend on the state of the stomach. Dr. John Sims has been in the habit of employing *pure ammonia* in such cases, and with "extraordinary success." He says, "In all the complaints of pregnant women, arising from too prevailing an acidity, so general with them, such as heart-burn, vomiting, cough upon taking food, and that feverish, restless state so common in the latter period of pregnancy. For all these complaints, I direct two or three spoonfuls of the following mixture

to be taken either occasionally, or when the symptoms are more continual, immediately after every meal :

(No. 1.) ℞ Magnesiæ ustæ, drachm. j.

Aqua puræ, unc. vss

Spt. Cinnamomi, drachm. iij.

Aquæ Ammoniz puræ, drachm. j.*. Misce.

“ Magnesia has long been a celebrated remedy for these complaints, but the most efficacious ingredient in the prescription is the pure ammonia, as the effect will be nearly the same without the magnesia, but this without the ammonia is far inferior indeed.

“ I was first led by accident to the discovery of the extraordinary power of the pure ammonia in correcting acidity in the stomach, over other alkaline substances. My wife being seized in the night with a severe heart-burn, I arose with a view of getting her some magnesia; but not being able to find any, and being desirous of procuring her some immediate relief, I expected to obtain this by any alkaline substance, and not meeting with any but the water of pure ammonia, which I happened to have by me, I administered twenty drops in a glass of water; the relief was instant, and more complete than she had ever experienced from taking magnesia. This induced me on another occasion to give her a teaspoonful of hartshorn drops in water, expecting the same effect; but, to my surprise, no sensible relief was obtained, even when repeated: recourse was had again to the pure ammonia, and with immediate success, as was afterwards found invariably to follow its use. This induced me to try it in others. At first I was apprehensive that the frequent use of caustic volatile alkali might be attended with some inconvenience, and I was unwilling to believe that it could possess any power beyond any other alkaline substances, which might neutralize the acid in the stomach; but experience convinced me both of its superior efficacy and its innocence, never having known any disagreeable consequences follow its use.

“ It should seem probable from the effect of this remedy, that the cardialgia, and the other symptoms enumerated, may arise from an acid gas in the stomach, more than from its liquid contents. This gas is probably neutralized by the alkaline gas into which the water of pure ammonia will be converted by the heat of the body. That the carbonates of ammonia will not succeed, may arise from the superior attraction of the carbonic acid for the alkali, to that of the morbid gas. But whether the theory be just or not, the effect is certain.

“ Before I conclude, it will be proper to remark, for the sake

* This proportion supposes that the aqu. ammon. puræ as prepared at the Apothecaries' Hall is used; that made by some of the chemists is much stronger.

of the younger practitioner, that the vomiting which occurs in early pregnancy, very rarely arises from, or is connected with, acidity, and that this remedy of course is not appropriate. When vomiting in early pregnancy is moderate, and confined to the fore-part of the day, it appears to be useful, and nothing should be done to prevent it; but it sometimes happens that the vomiting is incessant for many days together, accompanied with great prostration of strength, and constant thirst, and at the same time an utter inability of retaining any thing on the stomach. In this state the most effectual remedy I know of is, the application of leeches to the pit of the stomach, and a constant attention to suffer nothing to be swallowed that can irritate. I have found it of the greatest service to allow the patient nothing but asses' milk, and that by single spoonful only. The use of leeches applied to the pit of the stomach in relieving vomiting is by no means confined to the state of pregnancy, but when this symptom occurs in fevers, or follows the indigestion of any acrid substance, they are equally useful, as I have repeatedly experienced."

3. *Tumefaction, tension, and pains in the mammae*.—If tight lacing here be only avoided, and the breasts have room to enlarge and swell, no inconvenience ever follows: these effects arise from a natural cause, and seldom require medical treatment. If very troublesome and uneasy, bathing with oil, or anointing with pomatum, and covering with soft flannel or fur, will in most cases prove the cure.

4. *The menstrual evacuation*—is in some women regular for the first, second, or third period after conception. This seldom happens but in women of sanguinary plethoric habits, such as have been accustomed to large copious evacuations at other times, when the discharge is to be considered as beneficial.

5. *Deliquia, nervous, or hysterical fits*.—When these are occasioned by falls, frights, and passions of the mind, they frequently end in the loss of the child: but when they happen about the term of quickening, they seem to arise from the escape of the uterus from its confinement within the capacity of the pelvis; in which case they are commonly slight, of short duration, and never threaten any dangerous consequence.

II. The second class of complaints, viz. those that are incident to the advanced stages of the utero-gestation, and that depend on the change of situation of the gravid uterus, its enlargement and pressure on the neighbouring parts are more painful in their symptoms, and more dangerous in their consequences, than those enumerated in the preceding class. The premature exclusion of the foetus is generally the worst inconvenience resulting from the one; the death of the mother, along with the loss of the child, is too frequently an attendant of the other.

1. *Difficulty or suppression of urine*.—is sometimes occasioned by

the pressure of the uterus on the neck of the bladder, before the fundus uteri escapes from its confinement within the brim of the pelvis. This complaint, if early attended to, will seldom prove troublesome or hazardous; but cannot be entirely removed till the uterus rises above the brim of the pelvis, and by its enlargement becomes supported by resting on the expanded bones of the ossa ilia. But if neglected in the beginning,

2. *A retroversion of the uterus*—is generally the consequence; a case that demands particular attention. Here the fundus uteri, instead of being loose, falls back in a reclined state within the hollow of the os sacrum: thus a tumor is formed in the vulva, whereof the os tincæ makes the superior part; the body of the uterus, by this means, becomes strongly wedged between the rectum and bladder; and, from the enlargement of the uterus itself, and accumulating load of fæces and urine, the reduction will prove in many instances utterly impracticable. A total suppression of urine, or a rupture of the coats of the bladder, fever, inflammation, or gangrene of the uterus, often ensue; and these are succeeded by delirium, convulsions, and death.

The indications of cure in this dangerous disease, are sufficiently obvious: for, in the first place, every obstacle that prevents the reduction should be removed: thus the contents of the rectum and bladder must, if possible, be evacuated; emollient fomentations and cataplasms must be applied, if indicated by inflammation or tumefaction of the parts. Secondly, the reduction of the prolapsed uterus must be attempted, by placing the patient upon her knees, with her head low and properly supported. While this is attempted within the vagina, a finger or two should also be passed within the rectum, by which the operation in some cases may be facilitated: but, at other times, no power whatever will be sufficient for this purpose. Lastly, if the reduction be accomplished, the fever, inflammatory symptoms, and other consequences of the disease, must be subdued, and a recurrence prevented by an open belly, rest, and a recumbent posture, and promoting a free discharge of urine; means that ought to be persisted in till the uterus rises within the abdomen, when the patient will be secured from future danger.

3. *Costiveness in pregnancy*—is inconvenient. It may proceed from the same cause with the preceding complaint; it may depend on the stomach; the febrile heat, that in many women prevails, will also prove an occasional cause. It may be obviated or prevented by a proper regulation of the regimen, and by such gentle laxative medicines as are best suited to the state of the woman; the chief of which are ripe fruit, magnesia, lenitive electuary, cream of tartar, sulphureous and aloëtic medicines, oleum ricini, emollient clysters.

4. *The piles*—frequently arise in consequence of costiveness, or

from pressure of the gravid uterus on the hæmorrhoidal veins. These are also to be removed or palliated by the same means employed on other occasions; regard being had to this distinction, which may be applied universally to the gravid state, that all violent remedies are to be avoided: a light diet should be enjoined; the belly should be kept moderately open; and topical liniments or cataplasms should be applied, such as Balf. sulphur. Tinct. benzoes comp. Liniment. ex ol. palmæ, cum tinct. opii, poultices of bread and milk with opium, &c. according to the various circumstances of the case. See this subject under SURGERY.

5. *Edematous swellings of the legs and labia*—are occasioned by the languid state of the circulation, by the interruption of the reflux blood from the pressure of the distended uterus on the vena cava, &c. These, though very troublesome and inconvenient, are seldom, however, of dangerous consequence, except where the habit is otherwise diseased; and seldom require puncture, as the swelling generally subsides very quickly after delivery. They can only, therefore, at this time admit of palliation; for which purpose, along with a proper diet and moderate exercise, a frequent recumbent posture, open belly, and dry frictions applied to the legs evening and morning, will prove the most effectual means.

6. *Varicous swellings in the legs and thighs*—from the interruption of the venal blood in these parts, occasioned by the pressure of the gravid uterus, are to be treated in the same manner with the preceding complaint; or they may be assisted by moderate bandages of loose callico or flannel.

7. *Pains in the back, loins, cholic-pains, cramp*—occasioned by the stretching of the uterus and appendages, and from the pressure of the uterus on the neighbouring parts, symptoms that are most troublesome in a first pregnancy, are to be palliated by venæsection, an open belly, and light spare diet. If the patient be of a full habit, and predisposed to inflammatory complaints, where the pressure is very great in the advanced months, or in twins, &c. if proper remedies are neglected, inflammation of the uterus and adjacent viscera, or dreadful epileptic fits, may quickly ensue; the event whereof is generally fatal. Crampish spasms in the belly and legs require the same palliative treatment; to which may be added friction, and the application of æther, ol. volatil. balf. anodyn. or the like, to the parts affected.

8. *Cough, dyspnœa, vomitings, difficulty or incontinence of urine*—occasioned by the pressure of the bulky uterus on the stomach, liver, diaphragm, &c.—Complaints that can only be alleviated by frequent small bleedings, a light spare diet, and open belly. The patient should be placed in an easy posture, something between sitting and lying; and when the uterus rises high, a mode-

rate degree of pressure from the superior part downwards, may in some cases prove useful. But this must be used with great caution; for dreadful are the effects of violent pressure, or tight lacing, during pregnancy. It frequently kills both mother and child, and ought to be guarded from the earliest months.

9. *Inflammation of the bladder.*—This viscus, in common with every other, is liable to morbid affections, which may or may not prove serious in the unimpregnated state of the womb; but where these exist already, the disease is naturally liable to aggravation from pregnancy, and even to be hurried on to a fatal termination, as appears to have been the case in various instances.

The following case of a woman, aged about 32 years, who was nearly five months gone with child, and died of a mortification in the bladder, appears in the Medical and Physical Journal.

“Late at night on the 10th of February (says Mr. Dray, of Hythe) Mrs. Hannah Lowe was taken with pains so like to those of labour, that she expected an abortion would take place immediately. I was called upon to attend her early the next morning, when she informed me, that she supposed herself to be about four months gone with child, and that her pains had been regular and bearing. Finding no discharge, *ab utero*, and that she had passed but little urine, an enema was ordered, and, soon afterwards, an anodyne. Some hours afterwards, as the *fæcal* discharge had been trifling from the enema, a gentle laxative was given, by which her intestines were well emptied. It was plainly to be perceived, on an examination *per vaginam*, that there was a great bearing down, which led me to suppose, with the woman herself, that an abortion would not be long before it took place. She had external hæmorrhoids to so great a size, that I judged it necessary to puncture them. In a day or two after, on being informed that she now made so little water that it amounted to nearly a suppression of it, I passed the catheter, and drew off more than three pints of high-coloured urine, which greatly relieved her for a time; and the next day I drew off nearly the same quantity, but much paler. Observing that her seeming labour-pains recurred in proportion as the bladder became distended, I considered it proper to draw off her water, morning and evening, daily. In this manner she went on, without any material alteration, always complaining of a pain and tenderness of the abdomen, till about the tenth day, when her urine became so very offensive that I could hardly bear its stench. The uterus was forced down much lower into the pelvis, and the *os internum*, with the *cervix uteri*, clearly to be perceived in a straight direction towards the *os externum*. It was very plain to me now, from the fætor of the urine, and the turbidness of it (several times before), that the bladder was in a very diseased state; and I began to doubt whether there was any defect in the uterus. To be brief, the woman

kept on in this way (except that the abdomen got more and more enlarged, in an even and regular manner, up to the scrobiculus cordis, and the pain was much greater) till about the 2d of March, when she was seized with a hiccough that increased upon her till she died, which was on the 4th of March, in the evening, being the twenty-third day of the disease. The os tincæ, for three or four days before she expired, was quite at the verge of the os externum, but no discharge whatever was perceived to come from the uterus. There was no heat of the skin through the whole of this poor woman's case, no great drought, or acceleration of her pulse, till a day or two before the close of it. The alvine discharge was in general regular, excepting a small time before she died, when she had a frequent discharge by stool, and likewise a vomiting of porracious bile. The urine discharged by the catheter* was very high coloured, and much less in quantity for the last two or three days, and always followed with a bloody, foul mucus. Her tongue was clean the whole time of her disease. She got up and dressed herself every day. Her spirits were, commonly, good; and her senses perfect to the last.

" On opening the body, the omentum presented itself in a morbid state, adhering to the peritonæum, very generally, through its whole extent, and likewise to the intestines; and also the bladder adhered to the uterus. In short, the abdominal viscera appeared like one mass, the adhesions being so general. The bladder was much thickened and enlarged, and contained nearly two quarts of urine, in which was a great quantity of foul mucus, and the whole of it was in a complete state of gangrene. The uterus seemed not to be in the least diseased, and, from appearance, the fœtus† could not have been long dead. The whole of the gravid uterus was forced very low down into the pelvis, which, as I have before mentioned, might be plainly perceived whilst the woman was alive, by examining per vaginam. The kidneys and liver were in a sound state. A great quantity of fluid was effused into the cavity of the abdomen.

" The principal remarks to be made on this case, before and after the death of the patient, seem to me to be these: First, the seeming labour-pains, and bearing down of the uterus; secondly, the partial discharge at first, and, afterwards, total suppression of urine; thirdly, the gradual enlargement of the abdomen; fourthly, the absence of fever; nearly through the whole of the disease;

* It is to be remarked, that the patient never made a drop of water after the first two or three days of her illness; and, for many days previous to her dissolution, the point of the catheter was tarnished every time of using it.

† The fœtus, by its size, seemed to agree with the woman's statement of the time of her pregnancy.

fifthly, the great thickness of the bladder, and its extremely gangrenous state.

“ As this poor woman had been in a very healthy state previous to this attack (excepting a complaint she had for some time made to her friends, of an obtuse pain at the region of the bladder, running through to the back, which she did not think of consequence enough to consult me upon), I was much at a loss to account for the cause of the disease; which disease, with the principal symptoms in it, joined to what appeared on dissection, seems to me, now, to have clearly begun in the bladder. This has been, to my mind, satisfactorily explained since, by the friends of the patient. They informed me, that frequently, in the course of the day, she was in the habit of reaching over a chest, and taking a variety of things such as coals, &c. from behind it, placed there for convenience, as the family had only one room (a chamber), to live in. The pressure on the bladder, so very often, by the edge of the chest, when in a distended state, must injure it, I make no doubt, to a great degree; and by the pressure of that viscus and the intestines, at such a time on the uterus, this latter was forced down lower into the pelvis than natural at this period of its gravidity. The uterus being so low down in the pelvis, at the latter end of the disease, may be explained by the great size and distension of the bladder, as it was not possible to draw off the urine entirely, for a day or two previous to her dissolution. The pains, which alternated like those of labour, were clearly from the diseased state and distension of the bladder; and the total suppression of urine must arise chiefly, if not entirely, from the morbid state of it. The gradual enlargement, and constant pain in the abdomen, proceeded from the slow but steady progress towards the gangrene, which had extended itself along the peritonæum, &c. nearly as high up as the scrobiculus cordis. But the wonder now comes, why there was not the least symptom of fever, excepting near the close of the disease, when there was such a morbid state of the bladder, &c. and such great adhesions? I must confess that I am at a loss to account for a thing so extraordinary, but this was the fact; and it was equally a fact, that the woman's spirits and strength kept up in a most astonishing manner, notwithstanding she slept but little during the whole time of her illness.

“ The indications in this case were not such as to point out the use of bleeding, blistering, and other antiphlogistic means, the only ones which now suggest themselves as having the least chance of relieving the patient. The whole of the treatment that was indicated, seemed to me to consist in the evacuation of the urine, watching and keeping up the alvine discharge, and alleviating the symptoms occasionally.”

10. *Epileptic fits*—are a very dreadful and alarming appearance.

They generally depend on the same cause with the above complaints: they may also arise from irritation, excited by the motion and stirring of the fœtus, and from various other causes. Such as had convulsions when young, are most liable to them during pregnancy: they happen most frequently in first pregnancies, or where the fœtus is very large, or in twins, triplets, &c. In such cases, the distension of the uterine fibres is so great, that actual laceration is sometimes the consequence.

At whatever period of pregnancy they occur, the utmost danger may be dreaded. This; however, will be in proportion to the severity, duration, and recurrence of the paroxysm, to the term of gravitation, to the constitution of the patient, and her condition during the remission. The danger is greater towards the latter end of pregnancy than in the earlier months or in time of labour.

Such as arise from inanition, from excessive and profuse hæmorrhages, from violent blows, falls, &c. or from a ruptured uterus, are for the most part fatal.

Hysteric or nervous spasms must be carefully distinguished from true epileptic fits. The former are milder than the latter; they are not attended with foamings; they do not affect the posture; the pulse is smaller, feebler, and more frequent; the woman is pretty hearty after they are over; they are followed with no bad consequences, and yield to the common treatment. Women of strong, robust, vigorous constitutions, are more generally the subjects of the one; the delicate, the nervous, and the irritable, of the other.

Epileptic fits generally come on very rapidly; if any previous symptoms occur, the fit is commonly announced by an intense pain in the scrobiculus cordis, or violent head-ach.

In the pregnant state, these fits are for the most part symptomatic, and will therefore only admit of a palliative cure. They may be distinguished into three classes: those of the early months, those of the latter, and those that come on with labour-pains.

With regard to the cure, the term of pregnancy, as well as the constitution of the patient, and particular cause of the disease, must carefully be considered.

Convulsions at an early period of pregnancy chiefly happen to young women of a plethoric sanguine habit; and can therefore only be removed or palliated by a free and bold use of the lancet, by an open belly, cool regimen, and spare diet. After plentiful evacuations, if the stomach be loaded with acrid saburra or putrid bile, a gentle puke may be of use: but such remedies, on those occasions, must be employed with great caution. Instead of a plethoric, if the patient is of a nervous habit, a very necessary and important distinction, the intentions of cure will essentially

vary. For here opiates in large doses and frequently repeated, emollient clysters, stupes applied to the legs, the semicupium, and every other means to soothe the nerves and remove spasmodic stricture, will prove the most effectual remedies. If insensible or comatous, opium, musk, and other antispasmodics, should be exhibited by way of clyster, and the patient ought to be roused by epispastic and stimulating cataplasms applied to the legs and arms. Convulsions succeeding profuse evacuations are generally mortal. The *vis vitæ*, in such circumstances, must be supported by replenishing the vessels with the utmost speed: this is to be done by pouring in nourishing fluids as fast as possible by the mouth and by clyster; warm applications should also be made to the stomach and feet, and nervous cordials given internally along with opium.

The treatment of epileptic fits depending on other causes than those now mentioned, must be regulated by a proper attention to the particular symptoms with which they are attended.

In the advanced months, such complaints are more to be dreaded than in early gestation, as they generally proceed from the irritation occasioned by the distension of the uterine fibres, or by the pressure of the uterus on the contiguous viscera: hence the natural functions of these parts will be interrupted, the circulation of their fluids will be impeded, and the blood, being thus prevented from descending to the inferior parts, will be derived in greater proportion to the brain, and overcharge that organ.

The cure must, in this case, chiefly rest on copious and repeated bleedings, an open belly, and spare diet.

Lastly, when fits come on with labour-pains, a speedy delivery, if it can be done with safety, either by turning the child, or by extracting with the forceps when the head is within reach, will prove the most effectual cure.

When the bladder is distended, the contents must be evacuated: if a stone sticks in the urethra, it must be pushed back or extracted. If the fits are the effect of a ruptured uterus, immediate death is generally the consequence.

With regard to the treatment of such complaints, no other change is generally requisite, than what arises from the symptoms peculiar to this situation. In general, till after delivery, they will only admit of palliation.

Hydatids discharged from the uterus.—One of Dr. Smellie's pupils attended a poor woman, who, in the fourth month of her pregnancy, was taken with a violent flooding, which was restrained by opiates; but, in three days, returned with greater violence, accompanied with strong pains and frequent straining, like a tenesmus. At length she discharged a pot full of coagulated blood and hydatids, adhering to a membranous substance, or to one another like a bunch of grapes of different sizes, from

the bigness of a nutmeg to the smallness of hempseed. The patient was reduced to such a degree, that it was thought she could not possibly live; nevertheless, she gradually recovered, contrary to expectation.

Another practitioner was called to a woman about the age of 27, who thought herself seven months gone with child. When he entered the room, she stood leaning on the back of a chair, with an earthen pot betwixt her legs: she had voided near a pint and a half of blood into this receiver before he came, and at times evacuated the same quantity for near three months. Her flooding was then much abated; but she was very weak and low, though almost entirely free from pain. On examining the matrix, the *os tincæ* was found open to scarce the breadth of half-a-crown, but nothing like the appearance of a child. Though her flooding was now but small, in consideration of her having enjoyed no rest for three nights before, she was put to bed, and took a composing draught, which made her sleep about two hours; but she waked with seemingly strong pains. "I examined her," says the relater of the case, "again, and, introducing my fore and middle fingers into the vagina, felt something which I mistook for clotted blood. It filled both my hands when I brought it away, and appeared to be a large bundle of hydatids connected one with another by an infinite number of small, slender filaments. These bladders contained a clear lymph, and were of different sizes; some as large as my thumb, and others as small as a pin's head; and her pains continuing, she evacuated as many as filled a two-quart basin: thus delivered, she was free from her pains, her flooding ceased, and the womb contracted to the size of my fist. Nevertheless, she was still strongly possessed with the notion that there was a child remaining, and earnestly begged that I would bring it into the world. I assured her, that she was already delivered of what she had mistaken for a child, and having prescribed what was necessary, left her very well satisfied and composed. Next day I found her easy; she continued to do very well, and at the writing of this case was in the fifth or sixth month of pregnancy. She had been delivered of two children, before she was troubled with the hydatids."

Mr. Lamotte, in his 16th Observation, gives an account of a woman that imagined herself gone with child above five months, who was delivered of what was supposed a *mole*, or something of that nature, as big as two fists, composed of an infinite number of hydatids or vesicles, tied to one another by membranes, and which held together like the spawn of frogs; after being excessively weakened with a continual loss of blood for eighteen days, which was slight at first, but became very violent before delivery, and stopped immediately after.

In the Medical and Physical Journal we find the following case, by Mr. Mills, of Croom's-hill :

"Some time in July, 1797," says he, "I was casually consulted by a lady, who imagined herself two or three months gone with child; her complaints were pains in the back, attended at times with the sense of bearing down, and appearances of catamenia; hence she imagined she was about miscarrying. Knowing her aversion to any medical regimen, I only advised her to keep as much as possible in an horizontal position, and to pay due attention to the state of her bowels. Several weeks after I had given this advice, I met her maid, who informed me, that her mistress continued much as when I saw her. From this I hinted as my opinion, that she was not pregnant.

"When my patient had supposed herself to be five or six months gone, I was desired (unknown to her) to visit her; she was then on the bed, and told me she had throughout the day regular pains, with some discharge; but as she thought the pains were not sufficient to require my assistance, she had neither sent to me nor the nurse, being strongly averse to having either with her till absolutely necessary. I desired the family would immediately send for the nurse, to whom I gave directions that were proper for obtaining a due information respecting the nature and quantity of the discharge. In a little time, I was convinced that the flooding was considerable, particularly at the time of pain. I took the earliest opportunity to examine my patient by the touch, and found the vagina filled with what I imagined to be coagulated blood. The os uteri was low down, lax, and dilated about the size of half-a-crown. After this examination the hæmorrhage nearly ceased, but soon returning to an alarming degree, I determined to seek for the foetus and deliver. On introducing my hand for that purpose, the uterus forcibly contracted, and filled my hand with what I thought clots of blood: at that instant my patient was seized (as she called it) with a most violent cramp in her belly, and was attacked with a universal rigor. Under these circumstances, and sensible that the flooding had ceased, I desisted from pursuing my intention of delivering, and administered wine and such other remedies as the occasion seemed immediately to require. At this time the rigor and coldness were like the paroxysm of a severe ague; but the pulse, though quick, was not alarmingly low. When my patient had regained her natural warmth, I was solicitous to ascertain the state of the uterine discharge; I found hardly any, I therefore employed myself in clearing the bed from the collected coagula; when, to my surprise, I nearly filled a basin with innumerable hydatids, of various sizes, from a large Portugal grape to a small pin's head. The whole, so cleared, measured three pints and four ounces. The lady recovered her accustomed share of health, as patients usually

do after violent floodings, and I believe she has not proved pregnant since."

These latter cases, however, are rather to be classed under the head of Spurious Pregnancy; the *Diseases of Pregnancy* being, strictly, the effects of actual conception.

CHAP. X. FLOODINGS.

THESE, though confined to no particular term, may happen at every period of gravitation. The one is a frequent consequence of the other; the event of both is often hazardous, as the earlier miscarriages are generally preceded by an effusion of blood from the uterus, which, in the advanced stages of pregnancy, besides the loss of the child, always endangers the life of the mother.

The *menorrhagia gravidarum*—may be defined, an effusion of blood from the uterus, confined to no regular or stated periods, in quantity and duration various, and liable to recur on the slightest occasions.

The immediate cause is, a separation of some portion of the placenta or chorion from the internal surface of the uterus. Whatever occasions this separation, may be considered as the remote cause, which, though various, may be reduced to

- I. Those that affect the general system: as,
 1. External accidents changing the state of the circulation.
 2. Changes in the circulation from internal causes.
 3. Debility.
 4. Plethora.

- II. Those that affect the uterus and placenta: as,
 1. Direct affections.
 2. Stimuli communicated from an affection of other parts.

With regard to the cure—Though a flooding in some constitutions may happen even in early gestation, and may remit and recur from time to time, and the woman go on to the end of her reckoning; and though it seldom or never happens that this complaint proves mortal to the mother in the first five weeks of pregnancy; yet every appearance of this kind, even the slightest, is to be dreaded: as in the early months it will often throw off the fœtus, and, in the latter, always threatens the utmost danger both to mother and child. Floodings of gravid women we cannot propose radically to cure; they will only admit of palliation. With this view, the indications are,

- I. To lessen the force and velocity of the blood in general.
- II. To promote the constriction of the patulous mouths of the bleeding vessels, or the formation of coagula in their orifices.
 1. To answer the first indication, rest and a recumbent posture,

cool air, tranquillity of mind, a light diet, venæsection, and opiates, are the chief means.

2. To restrain the violence of the hæmorrhagy, internal astringent medicines are recommended; but this is to be accomplished chiefly by means of cold styptic applications to the parts and their neighbourhood. But as these floodings often arise from various and opposite causes, it is difficult to lay down particular indications, or to point out a method of cure suited to every case that may occur. The intention of cure can only be regulated by a careful and judicious consideration of the cause, and of those particular circumstances with which the case may be attended. In early pregnancy, it may be restrained by keeping the patient quiet and cool, by giving internally cooling fluids and opiates; but, in the advanced stages, the deluge is sometimes so profuse as to kill very suddenly. Under such circumstances, when the woman is near her time, emptying the uterus by delivery, if practicable, is the only safe expedient both for preserving the life of the mother and of the child.

If the hæmorrhagy can be restrained, a recurrence must be guarded against, by avoiding or counteracting the occasional or remote causes.

CHAP. XI. ABORTION, OR MISCARRIAGE.

SECT. I. Of SPONTANEOUS ABORTION.

ABORTION may be defined, the premature expulsion of the embryo or fœtus. Some, however, make the following distinction: When a woman miscarries in early gestation, this they consider as an abortion; but if in the latter months, that they term a *premature birth*. The symptoms that threaten abortion are:

Flooding.

Pain in the back and belly.

Bearing-down pains with regular intermissions.

The evacuation of the waters.

The death of the child, which discovers itself by the following symptoms; though in general these are so doubtful and fallacious, that none of them afford an infallible sign:

1. The subsiding of the abdominal tumor.
2. Cessation of motion in the fœtus.
3. The sensation of a heavy weight falling from side to side, as the woman turns herself in bed.
4. Sickness, faintings, rigors, cold sweats.
5. The breasts turning flaccid.
6. Coldness of the abdomen, and putrid discharge from the vagina.

Abortions are seldom dangerous in the first five months; but a frequent habit of miscarriage debilitates the system, shatters the constitution, and lays the foundation of chronic diseases of the most obstinate and dangerous nature.

In the advanced months, the prognosis will be more or less favourable according to the patient's former state of health, the occasional cause, and symptoms with which it is attended. The proximate cause of abortion is the same with that of true labour, viz. a contracting effort of the uterus and abdominal muscles, assisted by the other expulsive powers. The remote causes cannot be explained with precision; as many circumstances, with regard to the nature of impregnation, and connection of the fœtus with the placenta and uterus, are subjects still involved in darkness. They may in general, however, be reduced,

I. To whatever interrupts the regular circulation between the uterus and placenta.

II. To every cause that excites the spasmodic contraction of the uterus, or other assisting powers.

III. To whatever occasions the extinction of life in the fœtus.

Amongst the first are:

1. Diseases of the uterus.
2. Imperviousness or spasmodic constriction of the extremities of the uterine blood-vessels.
3. Partial or total separation of the placenta or chorion from the uterus.
4. Determination to other parts.

To the second general head belong all causes that produce a strong contraction of the elastic fibres of the uterus, or of the parts that can press upon it, or that occasion a rupture of the membranes; such as,

1. Violent agitation of mind or body.
2. A disease of the membranes.
3. Too large a quantity of liquor amnii.
4. The cross position of the fœtus.
5. Its motion and kicking.

The last head includes the numerous causes of the death of the child, which, besides those referred to in the preceding classes, may be occasioned by,

1. Diseases peculiar to itself.
2. Diseases communicated by the parents.
3. External accidents happening to the mother: or,
4. Accidents incident to the fœtus in utero.
5. Diseases of the placenta or funis.
6. Knots and circumvolutions of the chord.
7. Too weak an adhesion of placenta or chorion to the uterus; and,
8. Every force that tends to weaken or destroy this attachment.

In consequence of the great abridgment of the human race by abortion, and the ill health it induces to those unfortunate females who become subject to it, the late Dr. Hunter bestowed infinite pains to investigate its cause, and to check its progress. He dissected three abortions, which happened at the most usual time women are subject to this misfortune, namely, towards the end of the third month; whence it appeared, that there is an extinction of life in the fœtus for some time before any symptoms of abortion occur. For instance, if the miscarriage happens about the end of the third month, the age of the fœtus is generally no more than eight or nine weeks; or, if it perishes in the fifth, sixth, or seventh month, it will still be retained in the uterus, and the expulsion will rarely happen until near the completion of its full time.

Previous to opening these abortions, Dr. Hunter had made several useful discoveries relative to the human pregnant uterus. His brother, Mr. John Hunter, had likewise, by a number of surgical operations, manifested, that "the blood is the life of the body." Hence Dr. Hunter concluded, that a careful investigation of the minuter vessels of the uterine system, with their ramifications, would be the likeliest means of obtaining satisfactory information on this delicate subject. This also led him to the discovery of the decidua, which is a membrane of a very peculiar nature, the knowledge of which throws great light upon the contents of the pregnant womb, and upon the connection between the mother and child. It appears to be an efflorescence of the internal coat of the uterus; and is therefore shed as often as the woman bears a child, or suffers a miscarriage. It consists of two parts, called decidua vera, and decidua reflexa. In separating it from the chorion, and from the muscular fibres of the uterus, an infinite number of small veins and arteries are discovered full of blood, which ramify from its outer surface inwards through its whole substance, blending itself inseparably with the umbilical portion of the placenta. Its principal arteries run in winding convolutions, like the coiling of a snake, forming an appearance much resembling that of lace; and considering the number and size of the vessels, which are necessarily broken upon the expulsion of the fœtus, we cannot longer wonder at those frequent fatal bleedings which accompany miscarriages in an advanced state of pregnancy. The subjects of these curious and masterly dissections are represented in Plate V. of which the following is an explanation:

Fig. 1. An abortion of about nine weeks old, seen on that side which is membranous. The decidua is torn, and turned somewhat aside, to shew the smooth and opaque decidua reflexa. A, the rough external surface of the decidua, which exfoliated from the womb. B, the outside of a small portion of the pla-

centa, the rest of which was situated on the back part of this jet. CC, the internal cribiform surface of the decidua; which, in the first months of pregnancy, does not adhere to the membranes which it encloses. DD, the lacerated edge of the decidua, which had been continued into the edge EE of the same membrane. F, the decidua reflexa, spread over the outside of the chorion. GG, the angle of reflection at the edge of the placenta, where the inner layer of the decidua is turned over the chorion; much in the same manner as the inner lamella of the pericardium is reflected, to cover the outer surface of the heart. H, the termination of the decidua at the cervix uteri.

Fig. 2, shews a vertical section of the same subject. AA, the section of the placenta, which, we must suppose, had adhered to the upper and back part of the womb. B, the section of the anterior portion of the decidua. C, the section of the posterior portion of the decidua. D, the termination of the decidua at the cervix uteri. E, the cavity of the amnion, in which the embryo hangs by a slender navel-string, from the inside of the placenta. F, the section of the three membranes, which are not only contiguous, but adhere to one another, viz. the amnion, the chorion, and the decidua reflexa. GG, the angle at the edge of the placenta, where the inner layer of the decidua is reflected over the outside of the chorion. H; here those three membranes are a little separated, to shew their course at the placenta.

Fig. 3, represents an abortion of about eight weeks old. A small strap of the decidua is cut out, and turned up, to shew the cavity between it and the other membranes. A, the cut slip of the decidua. B, the part of the conception where there is no decidua, viz. opposite to the passage through the cervix uteri. CC, the external surface of the decidua. D, the decidua reflexa covering the chorion and amnion, which fill up the cavity of the decidua. E, the outside of the upper part of the placenta.

Fig. 4, represents the same subject, when the decidua had been opened by a crucial incision, and the four angles had been turned off, and then a round piece of the decidua reflexa dissected off, and turned to one side, to shew the loose vessels on the outside of the chorion. AA, the inside of the four angles or flaps into which the decidua was reduced by crucial incision. BB, the decidua reflexa covering the other membranes. C, the angle at the edge of the placenta where the interior lamella of the decidua is continued over the outside of the chorion, forming the decidua reflexa. D, a round portion of the decidua reflexa dissected from the outside of the chorion and turning aside. E, the chorion, with its shaggy vessels, laid bare. These vessels adhered firmly to the decidua reflexa, and parts of them were cut off with that membrane.

Fig. 5, shews an abortion of the same age, consisting of the

Fig. 1.



Fig. 6.

Fig.



chorion only, with its vessels and contents; that is, without the decidua, or uterine part of the secundines. A, the larger and more crowded branches of the shaggy vessels which shoot from the external surface of one part of the chorion, to mix with the decidua, or uterine part, to form the placenta. B, that portion of the chorion which afterwards becomes the uniform transparent membrane. It is covered with fewer and more delicate floating vessels, which lose themselves in the decidua reflexa. The embryo is seen through it. C, the vesicula umbilicalis on the outside of the amnion, seen through the chorion; with a whitish thread (the remains of an artery and vein), leading from it towards the navel of the embryo.

Fig. 6, represents the same abortion opened. The membranes, which were at the fore-part, being cut from the placenta, and turned up, the embryo is distinctly seen. A, the vesicula umbilicalis, from which B, the remains of an artery and vein, in the form of a white thread, pass to C, the navel of the embryo, with some turns of the intestines lodged in the beginning of the navel-string.

Dr. Hunter has given to the public an instance of abortion in advanced pregnancy, where the death of the fœtus seems to have taken place in the fifth or sixth month, by being entangled in its navel-string; and the mother died from the violence of the hæmorrhage. Dr. Hunter on this occasion remarks, that he never before observed an instance of any injury either to the mother or child, in consequence of the navel-string being twisted in coils round the neck of the fœtus. He once saw it turned four times and a half round the neck without the smallest inconvenience; from which he infers, that in such cases there is a proportionable redundancy of length in the string, and the child's head, gravitating towards it, might be caught in its coils, without occasioning such a constriction or knot as would impede the circulation through it. In the present case, however, the navel-string formed a convolution at the same time round the neck, and round the leg, of the child, in a position that precluded every possibility of its receiving the smallest nourishment from the mother. In Plate VI. is given a correct representation of this interesting subject, shewing the full size of the fœtus, with the decidua reflexa upon the chorion, through which the child appears, and of which the following is an explanation: A, the rugous inside of the neck of the womb, seen through the transparent covering. B, the substance, both of the womb and of the decidua, cut through. C, the decidua reflexa, covering the transparent membranes, in white and opaque stræ. It was become so thin by extension, as to be rendered almost transparent in many places. It had not as yet contracted an adhesion with the decidua which covered it. D, a convoluted artery, branching

through the decidua reflexa, from the edge of the placenta. E, a vein of the same kind. F, a turn of the navel-string round the child's neck. G, a convolution of the same round its leg. The cutaneous vessels of the child were as distinctly filled with blood, as if they had been injected.

Abortion is not easily prevented, as it is often preceded by no apparent symptom, till the rupture of the membranes, and evacuation of the waters, announce the approaching expulsion of the fœtus. Either to remove threatening symptoms, or to prevent miscarriage when there is reason to apprehend it, often baffles our utmost skill; because it generally happens, that there is a cessation of growth in the ovum; or, in other words, an extinction of life in the fœtus, some time previous to any appearance of abortion. For instance, in early gestation, a woman commonly miscarries about the 11th or 12th week; but the age of the fœtus at this time is generally no more than eight weeks. At other times, when by accident the fœtus perishes, perhaps about the fifth or sixth month, it will still be retained in utero, and the expulsion will not happen till near the completion of full time.

As women who have once aborted are so liable to a recurrence from a like cause, at the same particular period, such an accident, in future pregnancies, should therefore be guarded against with the utmost caution. On the first appearance of threatening symptoms, the patient should be confined to a horizontal posture; her diet should be light and cooling; her mind should be kept as tranquil as possible; a little blood from the arm may be taken occasionally; and opiates administered according to circumstances: but excepting so far as depends on these, and such-like precautions, for the most part, in the way of medicine, very little can be done.

Manual assistance is seldom or never necessary during the first five months of pregnancy: the exclusion of fœtus and placenta should very generally be trusted to nature.

The medical treatment of abortion must therefore be considered with a view only to the prophylactic cure: and this again will chiefly consist in a proper attention to diet.

Mr. Lucas, of Leeds, has written some Hints on the Management of Women in certain Cases of Pregnancy. In the course of his remarks, we find an account of his success in preventing abortion, even in very delicate women, liable to miscarriage, by observing a sparing diet about the same period of pregnancy at which they had formerly miscarried.

“Although (says Mr. Lucas) in most systematic writers on midwifery the subject of abortion, when immediately threatened, is fully discussed, yet few observations are to be met with respecting its *prevention in future gestations*. Those who are subject to



miscarriage are often unhealthy, and of delicate habits. As the occasional causes of abortion are seldom suddenly succeeded by the symptoms which immediately produce it, the preventive means are generally applied too late to be of material advantage. After a woman has been subject to miscarriage, unless when it has happened from an external injury, there seems to be a peculiar disposition to it about the same period of the next pregnancy; and even from such slight causes, that I have known it to appear to be produced from a fit of laughter; while, on the contrary, those who have never miscarried are so little liable to abortion, that attempts to procure it have often rather endangered the life of the mother than accomplished the baneful design.

“ Some years ago, I was called to a patient who had taken about a drachm of powdered cantharides, which brought on frequent vomiting, violent spurious pains, a tenesmus, and immoderate diuresis, succeeded by an acute fever, which reduced her to extreme weakness; yet no signs of miscarriage appeared; and about five months after the woman was delivered of a healthy child.

“ Accidents, or an acute disease, may be productive of abortion at any period of gestation; but it usually occurs about the third or the seventh month; and its prevention will be found more easy in the former than the latter stage. A strict attention to the time at which the miscarriage happened before, is necessary. By dating the commencement of pregnancy near a fortnight after the last menstruation, the third month may be nearly ascertained; and by observing the time of quickening, the seventh month may also be sufficiently known. If women would be thus exact in their calculation, as to the time when parturition might be expected, it would save themselves, as well as their attendants, much trouble; and it would rarely happen that the time could be mistaken more than a fortnight.

“ The preventive means, to which I would wish to solicit the attention of practitioners in midwifery, consist in strengthening the habit previous to a subsequent pregnancy; in taking away a few ounces of blood a week or two before that period of gestation at which the last miscarriage had happened; in advising a more abstemious or less nutritive diet; in prohibiting the use of fermented liquors, or of any severe exercise, especially such as may affect the parts more immediately concerned.

“ The following case may tend to illustrate the practice:

“ In 1784, I was consulted for a patient about thirty years of age, who had, in the space of four years, miscarried as many times; although she had before been the mother of two healthy children. Her constitution was so delicate, that her friends thought her consumptive. By the use of tonics, Buxton waters, and exercise on horseback, her health was much amended,

“ The latter end of December, 1785, she began to have such complaints as frequently attend the early part of pregnancy. The catamenia had ceased the 2d of November. January the 21st, supposed to be prior to the period at which she had before miscarried, I took three or four ounces of blood, and recommended a more sparing diet; particularly in regard to animal food and fermented liquors. Having strictly pursued this plan for a fortnight, she was advised to return gradually to her accustomed mode of living. Although she had before miscarried about the third month, she now passed that time without having any menacing symptoms. On the 28th of March the motion of the foetus was first perceived. Previous to the seventh month, her habit was so much reduced by the treatment requisite for an inflammatory fever that attacked her about that time, as to obviate the necessity of repeating the abstemious plan; and which was also less indicated, from her never having miscarried in the latter stage of pregnancy.

“ After having completed the full time of pregnancy, with fewer complaints than usual, on the 17th of August she was delivered of a healthy child, to which she gave suck; and has since enjoyed a good state of health. Such treatment is chiefly adapted to prevent abortion about the third month; and no great expectation can be had from it in the latter stage, especially if the placenta is attached to the os tincæ, and proves the cause of uterine hæmorrhage. It has failed even in a few cases of early miscarriage; but it has more frequently been found beneficial. I have sometimes omitted a recommendation of it, where future experience has convinced me of its utility. It is requisite but for a short time, may easily be varied, and has been found to relieve complaints of the stomach often attendant on such situations; nor does it in any respect interfere with the use of cold bathing, or other corroborants during the remaining part of gestation.

SECT. II. *Of* ARTIFICIAL ABORTION.

With the subject of artificial abortion, the medical practitioner has nothing to do, further than as an early knowledge of the means employed to procure it may enable him to counteract them, and preserve the lives of the mother and child.

Every woman who attempts to procure an abortion, does it at the hazard of her life; yet there are not a few who run this risk, either to prevent shame, or the trouble of bearing and bringing up children. It is surely a most unnatural crime, and cannot, even in the most abandoned, be viewed without horror; but in a decent matron, it is still more unpardonable. Those wretches who daily advertise their assistance to women in this business, de-

serve the most severe of all human punishments. The ancient Greek legislators, Solon and Lycurgus, prohibited the practice of creating abortion under the severest pains and penalties. Whether or no it was permitted among the Romans, has been much disputed between two learned modern civilians. It is certain the practice, which was by them called *visceribus vim in ferre*, was frequent enough : but whether there was any penalty on it, before the emperors Severus and Antonine, is the question. Noodt maintains the negative ; and further, that those princes only made it criminal in one particular case. viz. of a married woman's practising it out of resentment against her husband, in order to defraud him of the comfort of children : this was ordered to be punished by a temporary exile : *siqua prægnans vim visceribus suis intulerit ne inimico marito filium procrearet, temporali exilio coercetur*. He adds, that there was no general prohibition of the practice before Gratian and Valens. It is true, we find in Cicero an earlier instance of a woman punished for this fact ; but it was in Milefia, a country not subject to the Roman laws. Bynkershoeck, however, denies that a woman was allowed to drink the *peculum abortionis*, *impune* ; and the reason he gives, is, that the womb was the husband's property, who was declared by the laws the sole custos of it ; to prevent being imposed upon in the children he was necessitated to bring up. But then this does not affect women who had been impregnated by others than their husbands. The foundation on which the practice is said to have been allowed, was, the fœtus, while in utero, was reputed as a part of the mother, ranked as one of her own viscera, over which she had the same power as over the rest ; besides that it was not reputed as a man, *homo* ; nor to be alive, otherwise than as a vegetable, consequently the crime amounted to little more than plucking unripe fruit from the tree. Vide Juven. Sat. 6. v. 300. Senec. Consolat. ad Helviam Matrem, cap. 16. This last-cited author represents it as a peculiar glory of Helvia, that she had never, like other women, whose chief study is their beauty and shape, destroyed the fœtus in her womb.

The primitive fathers, Athenagoras, Tertullian, Minutius Felix, Augustin, &c. declaimed loudly against the practice, as virtual murder : *Homicidii festinatio est, prohibere nasci ; nec refert natam quis eripiat animam, an nascentem disturbet*. Several councils have declared against it. Yet we are told that the modern Romish ecclesiastical laws allow of dispensations for it. Egan mentions the rates at which a dispensation for it may be had.

The practice of artificial abortion is chiefly in the hands of women and nurses, rarely in that of physicians ; who, in some countries, are not admitted to the profession without abjuring it. Hippocrates, in the oath he would have enjoined on all physicians, includes their not giving the *possus abortivus* ; though else-

where he gives the formal process, whereby he himself procured a girl to miscarry. The time for it is presently after impregnation, at least within the third or fourth month of gestation. The manner of effecting it is chiefly by medicines of the purgative and deobstruent kind. Roman authors speak of the *poculum abortivum*, or abortive draught, frequent among them. External violences are also sometimes had recourse to, as leaping from a stool, prescribed by Hippocrates. Obstinate fastings, and vehement evacuations, have been frequently practised for the same end. Yet all the powers of medicine often fail to procure abortion, by reason of the naturally close contraction of the orifice of the uterus; which has been known to hold out against the most malignant fevers, dysenteries, salivations, and the like; against the strongest aperients and evacuates; against the distilled oil of juniper, favin, succinum; against large quantities of *crocus metallorum*, *artemisia*, myrrh, mercury, the farina of *muscus terrestris*, &c. The most fatal method is by punctures of the uterus, with a pointed instrument for the purpose, too often used among us, and not unknown to the ancients. Patin mentions a midwife hanged at Paris, for killing a foetus in the womb, by running a stileto, or kind of bodkin, up the vagina, through the orifice of the uterus; by which a miscarriage was produced, but with such ill success, that the mother was seized with convulsions, and died miserably. The criminal confessed she had treated many before in the same manner with good effect. Our own age and country affords a parallel instance, a woman having been some years ago executed among us for the like fact. Tertullian has a passage, which shews the same was practised in those days: *est etiam aneum spiculum, quo jugulatio ipsa dirigitur cæco latrocinio* ἐμβρυος-φασίην *appellant, utique viventis infantis peremptorium*. The operation, considering the tenderness of the part, must be of the utmost danger. Brendelius gives an account of what he observed in dissecting a girl at Norimberg, in 1714, who died of the operation which she had performed on herself: the neck of the uterus appeared exceedingly distended, the vessels lacerated and mortified, the uterus itself inflamed and putrefied, &c.

When the time of pregnancy is far advanced, abortion is not to be procured by artificial means without extreme danger; for the foetus being large, and the means violent, a profuse hæmorrhage precedes and ensues, attended with convulsions, fever, and perhaps a mortification of the womb. Yet every woman, during the whole time of her pregnancy, is more or less in danger of abortion; and therefore she should guard against it with the utmost care and circumspection, especially in the latter months, when it cannot happen, even by accidental means, but at the hazard of her life. In these advanced stages, the pains are much the same, and sometimes more violent, than those of labour;

manual assistance in such cases frequently becomes necessary; directions for which are given in their proper place.

With regard to the treatment. This must be varied according to the particular circumstances of the case: nor is it possible to point out particular indications, where the causes are so various.

CHAP. XII. OF REGIMEN DURING PREGNANCY.

WOMEN in general, when pregnant, should live regular, temperate lives; moderation in eating and drinking should now be very carefully observed, and every thing that has any tendency to disagree with the stomach should be avoided; otherwise the manner of life should be much as usual. If complaints do occur, these should be treated as at other times; only guarding against such things as, by violent operation, may endanger miscarriage. If the woman has formerly been subject to this accident, the cause should be carefully considered, and suitable remedies applied; if plethoric, for instance, she should be bled, live sparingly, and keep quiet, till she gets beyond the dangerous period. If she be weak, delicate, and nervous, bark, light aromatic bitters, mineral waters, and the cold bath (if able to bear it), will prove the best prophylactic remedies. The cold bath has, in many cases, cured the most obstinate fluor albus, and sometimes even sterility itself; and, in relaxed habits, disposed to miscarriage, when every other means has failed, the cold bath has done considerable service: the practice may safely be continued for some months after conception, when it has been early begun, or when the patient has been accustomed to it. Such a shock will, however, act very differently on different systems; hence it is an expedient by no means to be indiscriminately used in the pregnant state.

Abortions that happen in early gestation, and that come on suddenly without any presaging sign, if ever they are to be prevented, it can only be done by avoiding all occasional causes, by counteracting morbid dispositions, and by confinement to a horizontal posture for some time before, and till the critical period be over.

When a venereal taint in the parents is suspected to be the cause either of abortion or the death of the fœtus, the like accident can only be prevented by putting both parties on a mercurial course.

Pregnant women require a free, pure air; their amusement should often be varied; their company should be agreeable and cheerful; their exercise should be moderate, and suited to their inclination, constitution, and the season; they should avoid crowds, confinement, travelling over rough roads in a car-

riage, or being exposed to sea-voyages. Riding on horseback should also be practised with great caution, that disagreeable objects may be shunned, and shocks of every kind prevented. For this reason, when riding is judged proper, the woman should be a courageous rider; she should never ride without somebody being in company; the horse should be tame and well trained; the road should be smooth as well as private; and the exercise should be gentle and easy, and never carried the length of fatigue. Women should, with the utmost care, guard against confining the breasts or belly; early recourse should be had to jumps, and they should keep themselves as loose and easy as possible through the whole term of utero-gestation. An open belly is necessary and important in the pregnant state; it keeps the stomach in good condition, prevents colics and other complaints that may terminate in miscarriage. When the abdomen is pendulous towards the latter months, a gentle support by proper bandage will prove useful; and the woman, when fatigued, should occasionally, through the day, indulge in rest on a bed or couch.

CHAP. XIII. OF PROLONGED UTERO-GESTATION.

ON this obscure and doubtful subject, little information, of a satisfactory nature, has ever been, or perhaps ever will be, communicated. We shall therefore content ourselves with laying before the reader the following cases and remarks of the deservedly eminent Dr. Smellie. Speaking of women who exceed the common term of gestation, he says:

"I was bespoke to lay a young woman of her first child. She was taller than the middle size, and had been healthy from her infancy. She was married in September, about a week after the menstrual discharge, which, not returning at the stated time, she was seized with the usual complaints of sickness and retching, which her mother supposed to be certain signs of pregnancy; and though she reckoned only to the beginning of June, she was not delivered till the end of August. Before marriage, the menses had flowed regularly every four weeks; and though she, perhaps, did not conceive immediately after wedlock, it was reasonable to suppose she actually exceeded the usual term of gestation by four or five weeks at least. Her labour was very tedious, though the pelvis was of a large size; but the child was very lusty, and the head squeezed into a longitudinal form. Two years after, I delivered her of a second child, which was also very large; yet the labour was short, and happened according to the common time of reckoning; nor was the head of this last squeezed into a longish form, like that of the first, which was indeed the largest child I ever brought into the world."

A second case he describes thus :

" I was called by a midwife to a woman in child-bed, and found the breech of the fœtus presenting at the brim of the pelvis, where it stuck for some time, without advancing, although the mother had been long in labour, and the membranes had been broken eighteen hours before I came. I with great difficulty pushed up the breech, and brought down the legs ; and, after much fatigue, delivered her of a live child. According to this woman's reckoning, she had exceeded the usual time of gestation by eight weeks ; for she affirmed, and her mother confirmed the assertion, that she had but one discharge of the menses after she was married, and in the middle of the month was seized with the common symptoms of pregnancy, from which they concluded she had conceived soon after the evacuation.

" I have selected these two cases, from a great number of less certainty, to shew, that women may, probably, go with child beyond the nine months ; though this is a circumstance that rarely happens. Indeed I have known many women exceed that period by their own reckoning ; but I have generally supposed they committed some error in keeping the account.

" In Lamotte (liv. 1. ch. 27; and 28), we read of women who have been delivered a considerable time before and after the time of reckoning. ' I myself,' says Dr. Smellie, ' very often find my patients go two or three weeks beyond the nine months, reckoning from the last discharge of the menses.' "

THEORY OF MIDWIFERY;

PART II.

OF LABOURS.

LABOURS are divided into three classes: *natural*, *laborious*, and *preternatural*.

In whatever manner the head of the child presents, where the delivery at full time is performed by nature, the labour is with great propriety called *natural*; when the birth is protracted beyond the usual time, or cannot be accomplished without extraordinary assistance, it is deemed *laborious*; and *preternatural*, when any other part but the head presents.

CHAP. I. OF NATURAL LABOUR.

By whatever power the uterus is enlarged, when any further increase is prevented, a stimulus to contraction must ensue; by this means an uneasy sensation is excited, which must, in the woman, produce an effort to procure relief; and thus arise the true labour pains, which at first are slight and of short duration, a considerable remission intervening: the periods of recurrence soon become more frequent; the pains acquire an increased force, producing more and more change on the os uteri; which, yielding to the impelling cause, gradually opens and expands; till at length it becomes completely dilated, the membranes protruded and ruptured, and the child, by the expulsive force of the uterus, assisted by that of the diaphragm and abdominal muscles, is thus pushed along and delivered.

The symptoms of approaching labour are, the subsiding of the abdominal tumor: hence a discharge of mucus from the vagina, sometimes tinged with blood; incontinency, or suppression of the urine; tenesmus; pains of the belly, loins, and about the region of the pubes; restlessness, hot and cold fits, &c.

Spurious pains are to be carefully distinguished from those of

genuine labour. The former arise from the stretching of the uterus, and its pressure on the neighbouring parts, or from costiveness; and are to be distinguished from the latter by the following symptoms: They are most troublesome towards the evening, increase in the night, and abate through the day; they are more trifling and irregular than true uterine pains; the uterine orifice is not affected; and there is no increased flow of mucus from the parts.

True pains begin about the region of the kidneys, strike forward towards the pubes, and down the thighs: they return at regular periods; there is a copious discharge of mucus from the vagina; the os uteri gradually opens, and can be felt to dilate in time of a pain; while the membranous bag, in a tense state, forcibly pushes against the finger.

The event, in labour, is so precarious, that no certain judgment can be formed from almost any symptoms, till the labour itself be considerably advanced. A prognosis in general is chiefly to be formed from the age, state of health, and temperament of the patient; from the force, duration, and recurrence of the pains; and from their effect on the uterine orifice: from the time of the rupture of the membranes; from the general make and form of the woman, but, in particular, of that of the pelvis; from the bulk and position of the child, &c.

With regard to the method of delivery, and position of the woman, this has been different at different ages, and in different countries: the chief thing, however, is to guard against cold and fatigue, observing that the woman be placed in the most favourable posture for supporting the back, for the action of the abdominal muscles, &c. and most convenient for the necessary assistance. Till the labour is considerably advanced, she may be indulged in whatever posture is most agreeable; after which the bed or couch is the most proper.

With regard to assistance in natural parturition, the accoucheur for the most part has little to do, till the membranes are ruptured, and the head in perinæo. In time of labour, the woman should be kept very cool, and every means of being overheated should be avoided. She should be put to bed in proper time, placed on her side or back, with her head and shoulders a little raised, a cloth tied to the bed-post, or held by an assistant, to support her hands in time of pain, and her feet resting against a foot-board; her knees should be drawn up towards the belly, and a folded pillow put between them. All efforts to press or strain, except what nature excites, are improper, hurtful, and should be avoided: the membranes, if possible, ought not to be ruptured till they almost protrude at the os externum; the perinæum must be lubricated when formed into a tumor, and carefully supported while over-stretched; for this purpose, a cloth smoothly folded should be

applied over the part, to enable the accoucheur to have a firmer hold. This is an important part of his office, and must be attended to with the strictest care. From the time this protrusion begins to form till the head of the child be completely delivered, the perinæum must be carefully preserved by the palm of the hand firmly applied against it, which should be carried backwards in a direction towards the anus, and kept so during every pain. Thus the miserable consequences will be prevented to which the neglect of this pressure exposes; for by this support the overstretching of the perinæum will be greatly lessened, the parts will dilate gently and gradually, the vertex will easily slip from under the pubes, and the forehead will rise from under the perinæum in a safe, slow, and gentle manner. The perinæum must now be released, by cautiously sliding it over the face and chin of the child; and this ought to be made further sure of, by passing a finger under it round and round. After the head has thus mechanically advanced through the pelvis and vagina, a pain or two must be waited for, when in like manner the body will follow; nothing more being necessary than to support the child while it is gradually pushed forwards by the expulsive force of the natural pains.

When the child has cried, and the change in the circulation freely taken place, the funis umbilicalis must be tied and divided, the infant must be wrapped in a warm receiver, and given to the nurse to be washed and dressed.

The parts of the woman must now be gently wiped, a warm soft cloth must be applied, and a proper time waited for the separation of the placenta.

This is also the work of nature, and seldom requires more force to bring it along than if it lay entirely loose within the cavity of the uterus. Thus, in pulling, no greater force should be employed than is just sufficient to put the funis on the stretch: for if it is already separated, no violence is necessary to extract it; and if the adhesion is very firm, all violent efforts are improper, and often followed with most dangerous consequences. Its advancing is known by the contraction of the uterus, and shifting of the abdominal tumor, and by the lengthening of the cord. By the spontaneous contraction of the uterus, this separation is effected; the expulsion will be slower or more expeditious, according to the state and condition of the woman, according to the number of children she has born, and according to the duration or violence of the labour; it is easier and sooner separated in a first birth, when the woman is in good health, and when the labour has been properly managed. In most cases, this separation is accomplished within half an hour after the delivery of the child. It adheres most firmly after premature births, when the woman has been sickly during pregnancy, where the labour has been tedious.

and difficult, or when hasty attempts have been made to extract it. A finger, or a finger and thumb, guided by the funis, and introduced within the vagina, to bring down the edge, will remove any difficulty occasioned by the centre or bulky part passing the uterine or vaginal orifice.

When it becomes necessary to employ force in extracting the placenta, which is never requisite but in cases of flooding, when the woman has been in bad health during pregnancy, when she has suffered much in time of labour, or when the string has been torn from it (though the first of these cases is perhaps the only one wherein the practice is absolutely proper), the method of doing it is as follows: In ordinary cases, the woman should be laid on her back or side; but when the belly is pendulous, or when the placenta is attached to the fundus uteri, she must be placed on her knees, which is the most convenient posture.

The accoucheur, though with a certain degree of courage, yet with the utmost possible tenderness, must then pass his hand well lubricated through the vagina into the uterus, and feel for the convex body of the after-birth; if the chord be entire, this will direct him; if not, he must feel for the loose membranes at the edge of the cake, and must not be deceived by coagula of blood that lie in the way; if the uterus be constricted in the middle like a sand-glass, a circumstance that sometimes, though rarely, occurs, this must be overcome by a gradual dilation with one finger after another, till the whole hand in a conical manner can safely be passed. He must not content himself with feeling a part; he should be able to move his fingers round the whole body of the cake; the adhesion must be separated very gradually, in a direction from the sides round and round. The placenta is distinguished from the uterus, as well by its softness as by its convex puckered feel. This convexity increases in the same proportion as the uterus contracts: hence the middle part or centre of the placenta is first detached; and if the edges are carefully separated, by gently passing the fingers behind, the whole body becomes loose and disengaged, which must now be brought along with great caution, that no part be left behind, and that no injury be done to the woman in making the extraction.

Though bad consequences sometimes follow from the retention of the placenta, yet it is much to be questioned, if these are not less to be dreaded than the dangerous floodings, convulsions, delirium, inflammation of the uterus, fever, &c. that may be induced from the too prevalent practice of passing the hand to make the extraction: and would it not in general be better to confine the practice of introducing the hand, to cases of uterine hæmorrhages only? Where the adhesion is so firm as to require force, or where its place of attachment is out of the reach of the finger, by which, for the most part, the edge may be brought down, is

it not by far the safest and the most rational practice universally to trust to nature? Should the mouth or body of the uterus become constricted before the separation is effected, no matter; little is to be dreaded: it will afterwards kindly dilate; and the separation and expulsion will spontaneously be accomplished with as much safety as in other animals, where no force is ever used. Let every candid practitioner acknowledge, that for one instance where the retention of the placenta has been attended with dangerous consequences, its precipitate extraction has proved fatal to hundreds:—we shall, elsewhere, consider what is said on the other side.

After the delivery of child and placenta, the woman must rest a few minutes; her strength and spirits may be recruited by some light nourishing cordial; the wet cloths, &c. must then be removed; the bed must be properly shifted and adjusted, and a gentle compression must be made on the abdomen.

During lying-in, the woman should avoid company and noise; her dress and bed-linens should be often changed; she should avoid every means of being overheated; and with regard to her diet, it should, for the first week at least, be very light, and of easy digestion.

Under the head of Natural Labours, the following cases are recorded by the celebrated Dr. Smellie.

Of the Os Internum opened by the waters and membranes.

CASE I.—“I was bespoke,” says he, “to attend a woman in her first child, and received a call about the middle of the ninth month, when she complained of pains in her head and back, and I understood she was costive, and troubled with a tenesmus, which she mistook for labour-pains. After having felt her pulse, which was quick, sat by her for some time, and put the necessary questions to the nurse, I directed the patient to lie down on the side of the bed, and a quilt being thrown over her, placed myself behind, in order to examine. I found the os internum soft, but not open; from which circumstance I declared she was not in labour: then I ordered her to be bled to the quantity of eight ounces, and a clyster being injected, she was relieved of her complaints. In a fortnight after this visit I was called again, and found the labour begun; the os uteri was exceeding thin, and open to the breadth of half-a-crown, the membranes, with the waters, were pushed down by every pain, and the child’s head rested upon the upper part of the os pubis. For three or four days, she had been subject to slight pains, which returned at long intervals, then they became more frequent, recurring every two hours, and by that time I was called, they had grown stronger and came faster. As she was still costive, I prescribed an emollient clyster, by which the indurated fæces were discharged, and

then the labour proceeded in a slow and kindly manner, the membranes gradually opening the mouth of the womb. I did not confine her to any particular position, but allowed her to walk about, and undergo her pains, either sitting or lying in bed. The membranes having fully opened the os internum, and being pushed down in a globular form to the lower part of the vagina, gave way during a pain, while she stood leaning on the back of a chair, a large quantity of waters was discharged, and the child's head sunk down into the pelvis. This was her first child; she was of a strong constitution, and the external parts were very tight; so that I would not put her to bed, until the head should have come lower down, and gradually opened the os externum. But these parts being pretty well distended, and every thing fast approaching towards delivery, she was put to bed, which was prepared by the nurse, and laid on her left side: at every pain the head advanced further and further, the remaining part of the waters was gradually forced down, so as to lubricate the parts: I then plainly felt the ear of the child at the pubis, the hind head at the lower part of the left ischium, the lambdoidal suture crossing the end of the sagittal, and the fontanelle on the other side, higher up in the pelvis, at which part the sagittal was likewise crossed by the coronal suture. As the head advanced, the occiput was turned in below the os pubis: the soft parts of the mother, backwards, were protruded in form of a large tumor, the os externum was widened more and more, the perinæum lengthened to three fingers breadth, and the fundament to two: the crown of the child's head turned gradually upwards towards the upper part of the labia, the forehead being backwards at the lower part of the sacrum and coccyx: advancing still, the back part of the neck was felt below the pubis; then the perinæum being stretched to four or five fingers breadth, very tense and thin, I applied to it the flat part of my hand, during each succeeding pain, in order to prevent its being torn, and let the head be delivered in a slow manner, by raising up with an half-round turn below the os pubis. The same pain that delivered the head, forced down the shoulders, which I helped easily along with my fingers placed towards the armpits. I kept the child, after it was delivered, under the clothes, until it began to breathe and cry: then I tied and divided the funis, put a warm cloth round the head, and wrapping it in a recciver, gave it to one of the assistants. The placenta was gradually forced down into the vagina, and extracted by pulling gently at its lower edge, and at the funis. The child was a strong, healthy boy, and the mother recovered to my wish."

Dr. Smellie professes to have given a particular detail of this case, in order to make young practitioners acquainted with the common method of acting in natural labours, these being the

circumstances that usually occur to an healthy woman, in bearing her first child. Some slight pains recurring now and then for some days before the real labour, are of advantage in slowly and insensibly dilating the os uteri; so that when the pains grow stronger, the delivery is the sooner effected. The os internum is very different in different women, with regard to the thickness and rigidity, and in proportion to these, requires more or less time for the dilatation. In forty-nine cases out of fifty, the membranes break after the os internum is fully opened, so as that they are protruded into the middle or lower part of the vagina. After these are broke, the pains frequently abate for a shorter or longer time, and then growing stronger, the child's head is forced lower down, and the forehead turns gradually from the ischium into the hollow of the sacrum. Time should now be given for the vertex to open the os externum, and this is most safely effected by slow gradual pains; for there is seldom occasion to lubricate or use other means for stretching the parts. Indeed, in natural labours, almost our whole business consists in encouraging the patient, and preventing the fourchette or frænum labiorum from being torn, when the head is protruded through the os externum. For although it is commonly said, that such a woman was laid by such a person, the delivery is generally performed by the labour-pains; and, if we wait with patience, nature of herself will do the work. We ought not, therefore, to fatigue the patient by putting her too soon in labour, according to the common phrase, but to attend carefully to the operation of the pains, and in most cases we shall have nothing else to do but receive the child.

II. Dr. Smellie also delivered a woman in the beginning of the seventh month, of her third child. Her husband had died suddenly about twenty days before, and upon that occasion she had felt the child move with great violence, and this was succeeded by a kind of tremulous motion, after which she never felt it stir. On the nineteenth day after this accident, she was taken with a looseness, which brought on labour-pains; the membranes broke when the mouth of the womb was fully opened, and she was immediately delivered of a dead child, which passed easily along, though its abdomen was much swelled.

CASES of the *Os Externum* opened by the membranes.

I. "I was called," says the author, "to one of the poor women whom my pupils were to attend, and examining in time of a pain, I found the waters had pushed the membranes through the os externum, in a large, round, globular figure. When the pain abated, and the membranes became lax, I could easily with my finger feel the child's head at the lower part of the vagina. I desired her to lie down with her breech to the bedside, and be covered with a quilt. The pains, which were strong, returning

at short intervals, forced the membranes and waters with the child's head through the os externum; even the shoulders and part of the body were delivered before the breaking of the membranes, which then gave way, tearing all around from the edge of the placenta, and remaining upon the head and body of the child, which could not breathe until I had stripped them off. The woman had borne children before this labour; the pelvis was large, the child came to its full time, and of an ordinary size, but the placenta came off with difficulty. I understood she had not undergone above six pains when I arrived, and before the pupils could have notice to come she was delivered. She expressed great joy when she knew the child was born with a caul, which she dried and carefully kept, in full persuasion that her child would never suffer extremity either by sea or land, while it remained in her possession.

2. "In the same year," continues he, "I was called to another poor woman, whom I delivered by myself. The membranes, waters, and head, were protruded through the os externum, while the patient stood leaning on the back of a chair: then the membranes breaking, were torn all round before the shoulders were delivered, and remained sticking on the head: the same pain brought forth the body and the placenta, and I arrived just in time to prevent the child's falling on the ground.

3. "I attended a person who fell in labour in the latter end of the eighth month: she had formerly had quick labours, and now the pains were strong and frequent. The membranes and waters had opened the os externum, and the head of the child was low down, though it did not advance in proportion to the protrusion of the membranes, which, at last, were forced down about the size of a child's head, without the os externum. While the head was retarded in this situation, the weight of the waters stretched down the membranes and formed the appearance of a large bag, narrow at the upper part, which I pulled away, and threw into a basin. In three pains more she was delivered of a child, which had been dead eight or ten days, with a swelled abdomen, which had retarded the birth.

4. "I was called, in a great hurry, to a gentlewoman in labour of her first child, in the beginning of the seventh month; but, before I arrived, the membranes, with the placenta, waters, and child, were delivered altogether, and put in a basin by the nurse, so that I found the membranes whole, and the child swimming in a great quantity of water. Without remembering to search for the allantois, I opened them in a hurry, and perceived that the child had been dead ten or fourteen days.

5. "In the same year my assistance was demanded for another patient, come to the full time in her first child: the labour was slow, but by degrees the waters and membranes opened the os

internum and externum, without breaking, and the woman was delivered of a dead child, whose belly was swelled.

6. "In the next year I delivered a woman in the eighth month, whose os externum was opened by the membranes and waters, which were pushed out a great way: the child's head was likewise partly protruded, but yielded a very uncommon impression to the touch, as if there had been another set of membranes and waters, within which I thought I felt the loose bones of the skull. When I broke the membranes, I felt the hairy scalp, and discovered an hydrocephalus in the child, which was soon delivered, and lived some days, though, from its continual moaning, it seemed to be in great agony."

"Besides these," continues Dr. Smellie, "I have assisted in a great number of cases, where the membranes have opened the os externum, and the head has been delivered before they broke. Indeed, in all natural labours, I wait for this operation, which renders the passage for the child much more easy; and I never tell the good women whether or not the membrane remains upon the child's head, that they may not have an opportunity of indulging an idle superstition."

*CASES of the Os Internum opened by the child's head and membranes:
Also of the Os Externum opened in the same manner.*

1. "Being called to a woman in labour of her second child," says our author, "I felt the mouth of the womb largely open, and the midwife said that the membranes were broke. This declaration had alarmed the women, who entertained an idle notion that if she was not immediately delivered, she would lose her opportunity; and indeed this apprehension was the cause of my being employed. After she had undergone two or three pains, I found that the head had gradually increased the dilatation of the os internum, that the membranes were not yet broke, and that the midwife had certainly mistaken a small discharge of the urine for the waters. I then assured the patient that she was in no danger; and that even though the membranes had been broke, the delivery ought to be left to the labour-pains: in consequence of which the head was soon forced down into the middle of the pelvis, and the os uteri being fully dilated, I felt the membranes very smooth. Another pain forced the head down to the lower part of the pelvis, when the membranes splitting upon the head, I could plainly distinguish the hair of the scalp; and the patient was, in a little time, safely delivered by the midwife. I could feel no waters during labour, and there was only a small quantity discharged, when the body was delivered.

"Both before and since this occasion, I have been concerned in many cases of the same nature, which generally prove easy and

successful, and happen when the child is surrounded by a small quantity of water. I have been sometimes puzzled to know, whether or not the membranes were broke, until the head came so low down, that I could easily introduce the fore and middle fingers, and feel the hair of the scalp. However, this uncertainty is of no consequence in such easy labours: at other times, I could feel no waters, until the head descended low down, and then I have perceived them protruding the membranes at the back part of the pelvis.

2. "I attended at a labour in which the child's head came down in the same manner as that described in the preceding case: the child was small and came easily along; but I could feel no waters, nor did the membranes give way until the head was delivered. In other cases, where there was little or no water, the membranes generally broke sooner.

CASES of a small Child or large Pelvis.

1. "I was called to a gentlewoman who had bespoke my attendance, in consequence of her having been formerly subject to lingering labours, from the large size of the child, and the smallness of the pelvis; but before I could reach the place, she was delivered; and this uncommon facility proceeded from the very small size of the child, which was born four or five weeks before the end of her reckoning.

2. "My attendance was bespoke for a woman in her first labour, by her friends, who were afraid it would be difficult, because she was pretty much distorted, had been sickly during pregnancy, and took but very little nourishment. For two or three days she had been subject to slight pains; but when they became stronger, I was suddenly called, and when I reached her house, found the child coming into the world. It was very small, the pelvis of a middling size, and the os uteri was pushed down without the os externum. The suddenness of the delivery occasioned an inflammation of the mouth of the womb, which abated in consequence of her drinking plentifully of diluting liquors: yet, after the ninth day, she complained of great pain in that part when she sat up, but was tolerably easy while she lay in the bed. For this reason, I prescribed a longer term of confinement than is usual, and directed a sponge dipt in warm claret to be put up in the vagina, and this application to be repeated several times in a day. By these means the complaint vanished about the end of the month.

3. "I was called to a patient on the thirteenth day after delivery, who laboured under the same complaint which I have described in the preceding case, and which was likewise the consequence of sudden delivery. The pelvis was large, and the os uteri being swelled and painful to the touch, I ordered her to be

confined to her bed. The family physician being consulted, it was agreed, that she should drink plentifully of weak caudle, chicken-broth, and, for a change, barley-water, in order to promote a diaphoresis; and that equal parts of the emollient decoction and French claret should be applied in the vagina, with a fine linen rag. For many days the pain always returned when she rose from bed, till one night, being told the child was very ill, she ran up to the nursery in a hurry, and this motion entirely carried off the complaint."

"I have been concerned in many cases," continues Dr. Smellie, "where the women suffered, though not to such a degree, when the labour was precipitate, the child small, or the pelvis large.

"Many women have bespoke my attendance, and notwithstanding all my expedition, have been delivered before I could reach the place. One woman in particular bore five children so suddenly, that although I lived in her neighbourhood, and happened always to be at home, I never could arrive time enough to assist her, except in her first child."

CHAP. II. OF LABORIOUS, OR DIFFICULT LABOUR.

SECT. I. *Of the CAUSES of LABORIOUS PARTURITION.*

WHEN the birth is protracted beyond the ordinary time, or when the child's head, though naturally presenting, cannot be brought forwards without assistance, the labour is accounted difficult, or laborious.

Though the causes of laborious births are various and complicated, they may in general be considered as depending,

I. On the mother.

II. On the child.

III. On the secundines.

I. *The birth may be protracted, or the labour pains interrupted, by,*

(I.) Debility in the mother, arising,

a From disease, viz.

1. Flooding.

2. Epileptic fits.

3. Crampish spasms.

4. Lowness and faintishness,

5. Inflammatory diathesis:

6. Colic.

7. Nauseating sickness and vomiting.

8. Hectic or consumptive habit.

- b* From passions of the mind.
- c* From mismanagement in time of labour.
- (2) Local complaints in the parts, or their neighbourhood, *viz.*
 - a* In the bones, occasioning narrowness and distortion.
 - b* In the soft parts, *viz.*
 - 1. Dryness and constriction of the vagina.
 - 2. Thickness and rigidity of the os tincæ.
 - 3. Scirrhus or polypous tumors about these parts.
 - 4. Accumulated feces in the intestines.
 - 5. Stone in the urethra.
 - 6. Prolapsus of the uterus, vagina, and rectum.
 - 7. Obliquity of the uterus.

II. Difficulties also arise on the part of the child, *viz.*

- 1. From the bulk and ossification of the head.
- 2. The situation in which the head presents.
- 3. Large broad shoulders, or their transverse descent through the pelvis.

III. The secundines, *viz.*

- 1. The rigidity of the membranes, and the contrary.
- 2. Too great a quantity of water.
- 3. The funis umbilicalis too long or too short.
- 4. The prolapsus of the funis before the child's head; and,
- 5. The attachment of the placenta towards the cervix or os uteri.

The treatment of laborious births requires a very nice and careful attention to the condition of the patient and other circumstances, from whence only we can judge when assistance becomes requisite, and how it may be applied to the best advantage. That pain and misery is the unavoidable and inseparable attendant of child-bearing, though dealt out in different proportions to different subjects, the testimony of all nations, and all ages, as well as daily experience, bear witness: nor is the easiest labour altogether exempted from pain, even under the most favourable circumstances. The delivery, however, promises to be safe and easy, when the woman is of proper age, in good health, the child presenting right, and the pelvis well proportioned; but the force of the natural pains may be interrupted, and of consequence labour be retarded, from,

(1.) Debility in the mother, arising from

a Disease. This may appear under various forms; as,

1st, *A flooding.* Which is very alarming, even along with labour pains: though less so in this case than when at a distance from full time; because as the labour pains increase, the hemorrhagy very generally abates: or if not, breaking the membranes when the aperture of the os uteri is sufficient to admit the hand, seldom fails to produce that effect. The woman in this case must be kept cool. Opiates must be administered; she must be com-

forted with the best assurances of a happy delivery ; and the natural pains must be waited for.

But if the hemorrhagy proceeds from a separation of the placenta, attached towards the cervix or orificium uteri ; in this unhappy case, the whole body of the cake may be completely separated before the aperture of the uterus be sufficient for allowing the head to pass, and the deluge may be so sudden and impetuous, that the woman will sink immediately under it. Breaking the membranes, and making the delivery, either by turning the child, or extracting with the forceps or crotchet, according to circumstances, with as much expedition as is consistent with the mother's safety, is the only expedient by which the threatening catastrophe may be prevented.

2dly, *Epileptic fits* may in like manner retard labour, and endanger the life of the mother. If the child is not thrown off by a few fits, which is often the case, the delivery should be effected as soon as possible.

3dly, *Crampish spasms* in the thighs, legs, rarely in the belly, are very troublesome. They depend on the pressure of the head on the nerves as it passes through the pelvis, and can only be removed by delivery ; which, as these pains are seldom if ever attended with danger, are not to be forced on this account. Breaking the membranes will sometimes remove them.

4thly, Lowness and faintishness often occur, and frequently prove the cause of protracted labour.

No general rules with regard to the management of slow labour can be recommended. The mode of treatment, where so many circumstances may occur, must be suited to the condition of the patient, as every particular case will, in some measure, require a different management. Much depends on the prudence and judgment of the attentive practitioner. For instance, when the woman is nervous, low-spirited, or weakly, from whatever cause, in general her strength must be supported : she must not be put on labour too early ; she must avoid heat, fatigue, and every means of exhausting her strength or spirits. When she is restless, or the pains trifling and unprofitable, opiates are particularly indicated ; they remove spurious or grinding pains, recruit the spirits, procure rest, and amuse time. Little else for the most part is to be done. If the uterus once begins to dilate, though the dilation goes on slowly, it is by much the best and safest practice to do nothing but regulate the management as above. The pains at last will become strong and forcing ; and the delivery, even where the patient has been very weakly, will often have a safe and happy termination. In these tedious labours, if the strength of the woman be properly supported, every thing almost is to be expected from nature. Forcible means should be the last resource.

5thly, *Inflammatory diathesis*, in young subjects of strong rigid fibres and plethoric habits, must be obviated by venæsection, an open belly, and cooling regimen.

6thly, *Colic*.—Many women have severe attacks of this disease immediately before the labour-pains come on; the reason of which is sufficiently obvious: the belly, which formerly rose so high that the fundus of the womb pressed against the pit of the stomach, afterwards subsiding, by the child's sinking to the lower part of the womb, and the oval of the head being applied to the oval of the basin, the contents of the intestines will be forced lower and lower, and the strait gut will be distended. Hence colic pains, irritation, and uneasiness, frequent desire to go to stool, or frequent loose stools, generally ensue. The best palliative remedy is to inject emollient clysters repeatedly till the bowels be entirely emptied. Although some degree of purging should attend the tenesmus, it will be necessary to wash the strait gut, by the use of one or more clysters. The irritating cause being in this way removed, an opiate, if no inflammatory heat or fever prevents, may be afterwards given with advantage.

7thly *Nauseating sickness, with vomiting*.—When these symptoms occur, warm water or chamomile-tea must be drunk freely. Sickness and vomiting happen in some degree in the easiest labours. Sometimes they proceed from a disordered state of the stomach; but in general are to be accounted for from the well-known sympathy of the womb with the stomach; and accompany the stretching of the os uteri only.

8thly, *Hætic or consumptive habit*.—It is a melancholy thing to attend a labouring woman in this state. The pains are weak and trifling; she cannot force much down; and she is feeble, and liable to faint when the pain goes off. But however apparently exhausted, the progress of labour goes on, in most cases, much better than could be well expected. The orifice of the womb gives little resistance to the force of the pains, weak and trifling as they are; the parts are soft and lax, and soon stretch in such a manner, that, if there be no fault in the pelvis, the child readily obtains a passage.

Here little is to be done but supplying the patient from time to time with light nourishment; with cordials that do not heat: and keeping up a free circulation of cool air all around her; for this purpose the curtains should be quite drawn aside, doors and windows widely opened; and she should be placed in a position with her head and breast well raised, that an easy respiration may be promoted. Hætic women, under proper management, rarely sink immediately after delivery; they generally survive a week or longer, though they seldom outlive the month.

b. *Passions of the mind*. Any piece of news in which the patient, her family, or relations, are interested, should be carefully

concealed, as well as every thing that tends in general to affect the passions; as labour may not only be interrupted from this cause, but the most dangerous symptoms, as floodings, convulsions, deliquia, and fatal syncope, may be induced.

c. From mismanagement in time of labour often arises debility; so that the patient's strength is exhausted, the pains at length entirely cease, and the head of the child remains locked in the pelvis, merely from want of force or pain to push it forwards. In all cases where the labour has the appearance of being tedious, the woman's patience must, as much as possible, be supported. During the grinding pains, she must be kept cool and quiet: opiates may be exhibited to pass the time, till the forcing throes ensue, when she will acquire resolution the parts will dilate kindly, and the labour end happily; whereas, if she considers herself in labour from the earliest appearance of grinding pains, she is frightened at the length of time, and her patience runs out. Slow lingering labours happen chiefly to elderly women, having a rigidity in the parts, to nervous subjects, and to such as have been weakly during pregnancy. It is of great consequence, and the advice cannot be too much inculcated, to avoid exhausting the woman's strength too much at first.

(2.) Local complaints in the parts, or their neighbourhood.

a. Narrowness or distortion of the bones of the pelvis. Where there is any material defect in this cavity, a superficial knowledge of the form and structure of the parts will enable us to judge. If, from the figure of the woman's body, there is reason to suspect a faulty pelvis; if the spine is twisted, the legs crooked, the breast-bone raised, or the chest narrow; whether the pelvis be affected or not, she will require a particular management; for the constitution of such women is weak and feeble, and they cannot be much confined to bed on account of their breathing. We can never be absolutely certain of a distortion of the pelvis (except when the distortion is confined to the inferior aperture) till the uterine orifice is considerably dilated. After this time, if the pains are strong and forcible, and the head of the child makes no advance, a narrow pelvis or large head is to be suspected. The pelvis may be faulty at the brim, bottom, or in the cavity or capacity. The first of these, which most frequently occurs, is the most difficult to be discovered. The second can be readily perceived by the touch: for we can feel the defects in the shape of the os sacrum and coccyx, in the position of the ischia, and in the bending of the pubes; and where the distortion is so general, that the whole cavity of the pelvis is affected, the shape of the woman's body, the slow progress of the labour, and the state of the parts to the touch, will afford sufficient information.

In the first case, we can only know the distortion by the symptoms; for we should not attempt to introduce the hand till the

mouth of the womb be dilated : it is afterwards necessary ; for we know that the pelvis is too small, or the head too large, by its not advancing in proportion to the pains, and by feeling a sharp ridge like a sow's back on the top of the child's head, which is occasioned by the bones rising over each other in consequence of the pressure.

How long nature, in such circumstances, can support the conflict, it is difficult to say. It is sufficient to observe, that when things are properly prepared for the advance of the child, when the first stage of the labour is accomplished, but its progress is then suspended, it is of little consequence to the midwife whether the obstacle is to be referred to the child or to the mother ; and a man-midwife ought to be immediately called in.

If the patient's strength declines ; if the head, from being locked in the bones of the pelvis, begins to swell, and the parts of the woman to be affected with tumefaction and inflammation ; nature, in this case, seems insufficient, and it will be dangerous longer to delay the proper means of making the delivery ; as mother, or child, or both, may fall a victim to our neglect. We must not, however, allow ourselves to be imposed on, either by the impatience of the distressed mother, or by the clamours of the officious impertinents about her. In affording that assistance we are able to give, we are only to be directed by the symptoms of the case : we must remember, that the gentlest assistance our hands or instruments in laborious births can afford, is always attended with hazard and risk ; that if instruments be applied too early, nature will be thus interrupted in her work, and the most fatal consequences may ensue ; and that if assistance be delayed too long, the mother may die undelivered : we ought, however, to be informed, that the former practice of having too early recourse to forcible means, where, in time, nature unassisted might do her business, has proved by far more fatal than the latter. We ought, therefore, carefully to consider the general history of the patient, and particular circumstances of the case, that we may hit the proper time of making the delivery ; which, in these laborious labours, is exceedingly difficult to determine ; yet it is a matter of the utmost importance, as there is always one, often two or more lives at stake, and the accoucheur is accountable for the consequences of his misconduct or neglect.

b. The fault may be in the soft parts : as,

1. Dryness and constriction of the vagina. Here all stretching and scooping is to be avoided. The natural moisture is to be supplied by lubricating with pomatum or butter, or by throwing up injections of warm oil ; the parts are likewise to be relaxed by the application of warm stupes, or by warm steams directed to them.

2. Thickness and rigidity of the os tincæ. This happens

chiefly in women well advanced in life, where the parts open more slowly, and the labour generally proves more tedious. Here also little is to be done but waiting with patience, comforting the woman as well as possible, and giving an opiate from time to time. The parts may be relaxed with butter or pomatum, by throwing into the vagina injections of warm oil, or by the application of warm stupes to the os externum. Every forcible attempt to open or stretch the uterus, as some authors presume to advise, is apt to induce inflammation and its consequences, and to interrupt the natural pains: it is therefore universally the safest practice to trust in every case to these; though tedious, or even violent, the labour for the most part will end more happily, and the woman recover better, than if force had been employed.

3. Polypous tumors, &c.—There is seldom occasion, in case of cicatrices in the vagina, to dilate with the scalpel, to remove polypous tumors by excision, or to cut upon and extract a stone from the urethra in time of labour. But if circumstances are urgent, such expedients are safe and practicable, and warranted by many precedents.

4. Accumulated feces in the intestines ought always to be removed by repeated emollient clysters on the first appearance of approaching labour.

5. A stone in the urethra, if it cannot be pushed back, must be cut upon and extracted, as already advised.

6. Prolapsus of the uterus may happen even at full time, in a pelvis too wide in all its dimensions; for which, however, nothing can be done but to support the uterus in time of a pain, that the stretching of the parts may be gradual. Prolapsi of the vagina and rectum must be reduced at the remission of the pain, and a return by gentle pressure must be prevented.

7. Obliquity of the uterus, though a favourite theory of some authors, never happens in such a degree as to influence delivery, except in the case of a pendulous abdomen, or where it depends on the make or distortion of the pelvis. The first of these, though it may, by throwing the child's head over the pubes, occasion perhaps some little delay, will seldom prove any material obstacle to the progress of the labour.

11. *The protraction of labour may depend on the child, and may arise from,*

1st, the bulk or ossification of the head.

There may be either a natural disproportion between the head and body, or the swelling may be occasioned by a putrid emphysema in consequence of the child's death; or the enlargement may proceed from a hydrocephalus. The first of these cases can only be discovered by the slow progress of the labour, when the pains are strong and frequent, the soft parts sufficiently dilated, the woman in good health, and no other apparent cause to account

for the remora. The second is discovered from the history of the case, from the common symptoms of a dead child, viz. the puffy emphysematous feel of the presenting part of the head, and from the separation of the cuticle when touched. Lastly, the hydrocephalus is discovered by the head falling down in the pelvis in a large bulky form, by the bones of the head being separated at considerable distances, and by a fluctuation evident to the touch. On the whole, however, it may here be observed, that the most probable or suspicious symptoms of the child's death are often deceitful.

From whatever cause the head is enlarged, if the difficulty arises from this cause, and the force of the pains prove insufficient to push the head forwards, recourse must be had to instruments; and if the bulk of the head is too large to pass the diameter of the pelvis, the cranium must be opened to diminish its size, and the brain evacuated previous to the extraction.

2dly, The position of the head, which may be squeezed into the pelvis in such a manner as not to admit of that compression necessary for its passing. Such a cause of difficulty, however, more seldom occurs than many authors have imagined. The rash and preposterous application of instruments has, in such cases, proved the bane of thousands. Here though the labour will prove more painful and more tedious, yet nature in general, unassisted, will accomplish her own work with more safety to mother and child, than by the intrusion of officious hands. Turning here is always difficult, often dangerous. The same observation will hold of instruments, which should never be employed but when alarming symptoms occur: the assertion perhaps is not more bold than true, that, in general, the most disadvantageous position in which the head can offer is not sufficient, without some other cause concurring, either to prevent delivery, or to endanger the life of mother or child so much as would be done by the movement of the gentlest hands. Yet, in some cases, where the woman is weak and exhausted, and the pains trifling; if the head of the child be large, the bones firm, and the sutures closely connected; or if there be any degree of narrowness in the pelvis, a difficult labour is to be expected; and the life of both mother and child will depend on a well-timed and skilful application of the surgeon's hands.

The unfavourable position of the head may be referred to two kinds, which include a considerable variety. 1. When the fontanella, or open of the head, presents instead of the vertex. 2. Face cases.

If no other obstacle appears but the presenting of the fontanella, the labour will by proper management generally end well; and much injury may be done by the intrusion of officious hands.

Face-cases are the most difficult and laborious of all kinds of

births; and our success in these will chiefly depend upon a prudent management, by carefully supporting the strength of the woman. The varieties of face-cases are known by the direction of the chin; for the face may present, 1. With the chin to the pubes; 2. To the sacrum; 3. To either side. The rule in all these cases is to allow the labour to go on till the face be protruded as far down as possible. It is often as difficult and hazardous to push back the child, and to bring down the crown or vertex, as to turn the child and deliver it by the feet. Sometimes a skilful man may succeed in his attempt to alter the position, when he has the management of the delivery from the beginning; or, in those cases where the face is considerably advanced in the pelvis, may be able to give assistance by passing a finger or two in the child's mouth, and pulling down the jaw; which lessens the bulk of the head; or, by pressing on the chin, to bring it under the arch of the pubes; when the crown getting into the hollow of the os sacrum, the head will afterwards pass easily.

3dly, The breadth of the shoulders, or their transverse descent through the pelvis, rarely proves the cause of protracted labour. The head is always pretty far advanced before any obstruction can arise from this cause; and if the head has already passed, in a pain or two the shoulders will follow. The same reasoning will also apply with regard to the aperture of the uterus itself, if the head passes freely, in like manner will the shoulders; the os uteri rarely, if ever, is capable of contracting upon the neck of the child, and thus preventing the advance of the shoulders; and should this prove the case, what can we do but wait with patience? After the delivery of the head, if the woman falls into deliquia, or if after several pains, the shoulders do not follow, and the child's life be in danger from delay, we should naturally be induced to help it forward in the gentlest manner we are able, by passing a finger on each side as far as the axilla, and thus gradually pulling it along.

III. Lastly, *From the secundines, difficulty and danger sometimes arise.*

1st, The rigidity of the membranes, and the contrary. From the first of these causes, the birth is sometimes rendered tedious; but as the same effect is much oftener produced by the opposite cause, and the consequences of the latter are more troublesome and dangerous than the former, we should always be exceedingly cautious of having recourse to the common expedient of breaking the membranes, which ought never to be done till we be certain the difficulty depends upon this cause; and, even then, the head of the child should be well advanced, and the membranes protruded almost as far as the os externum. Many inconveniences arise from a premature evacuation of the waters; for thus the parts become dry and rigid, a constriction of the os uteri for a

time ensues, the pains often either remit or become less strong and forcing, though not less painful and fatiguing; the dilatation goes on so slow, and the labour becomes so severe, that the woman's strength and spirits, by the unprofitable labour, are quite overcome and exhausted; so that the head remains confined in the passage, merely from want of force of pain to push it forwards. The woman in the beginning of labour should therefore be treated with the utmost delicacy and gentleness. The work of nature is too often spoiled by officious hands. She should be seldom touched while the membranes are whole, lest they should be ruptured; and, even when touching is necessary, this should only be done when the pains begin to remit, and the tense membranous bag to relax.

2dly, Too great a quantity of water may prevent the uterus from contracting, and thus weaken the force of the pains. Though this may, however, occasion a delay, it will never be attended with more dangerous consequences; and the same advice already given will hold equally good in this case, that the membranes should never be broken till the soft parts be completely dilated, and we are assured that the difficulty or delay proceeds only from this cause.

3dly, The funis umbilicalis too long. The funis may be faulty from its too great length, or the contrary: thus the extraordinary length, by forming circumvolutions round the child's neck or body, sometimes proves the cause of protracting the labour. But as this can only happen when the chord is of an uncommon length, there is generally enough left to admit of the exit of the child with safety; and it is time enough, in general, after the child is born, to slip the noose over the shoulders or head: there is seldom occasion to divide the chord in the birth; a practice that may be attended with trouble and hazard.

The practice of introducing a finger in ano, to press back the coccyx, or to prevent the head, when it advances, from being retracted by circumvolutions of the chord, is now entirely laid aside; an expedient that can answer no end, but that of fretting and bruising the parts of the mother, and injuring those of the child.

Funis too short. The funis is sometimes thick and knotty, or preternaturally thickened by disease. In this case, part of the placenta may be separated as the child advances through the pelvis, and thus a flooding will ensue; or the funis may be actually ruptured, and occasion the death of the child, if the birth does not quickly follow. Such cases, however, rarely happen.

An inconvenience, at least fully as bad as the former, may arise from the too great length of the funis, though it may depend on other circumstances, viz.

4thly, The prolapsus of the funis before the head. In this

case, the funis, if possible, should be pushed up above the presenting part; for, if the labour pains are slow, and the chord becomes cold, or the pulsation in it begins to grow languid, the circulation will thus be interrupted, and the life of the child destroyed. If the head is far advanced in the pelvis, and the child's life in danger, the delivery may be performed with the forceps: But to push up the head, and turn the child with a view to preserve its life, as many authors recommend, is a practice by no means advisable: we should seldom, in this position, be enabled to save the child; and turning under such circumstances can never be done but at the immediate hazard of losing the mother.

5thly, Placenta attached towards the cervix or os uteri. This case is truly melancholy; for, if the delivery is not speedily accomplished, the effusion from the uterine vessels will be so copious and profuse, that the unfortunate woman must in a very short time perish. On this occasion the delivery must be conducted in the best manner the judgment and skill of the operator can direct, and with as much expedition as the safety of the mother will admit.

Thus, in most laborious cases, provided the woman's strength be supported, the management properly regulated, the natural moisture of the parts when deficient supplied, manual assistance very seldom becomes requisite: but as cases do occur, wherein nature, with all advantages, will fail, and the common methods of relief prove unsuccessful, recourse must be had to more powerful means, while the woman is able to support the conflict. In all such cases, the condition of the patient, the structure and state of the parts, and position of the presenting part of the child, must very carefully be considered.

SECT. II. CASES of TEDIOUS and DIFFICULT PARTURITION.

That truly eminent and accurate practitioner, Dr. Smellie, has recorded the following cases of difficult labour, which, for the useful information they convey, are at least of equal value with any of modern times.

Lingering Labours arising from the Rigidity of the Membranes when pushed down with the Waters.

CASE I. "I was called to a patient whose pains were pretty strong. The mouth of the womb was largely open, the head presented at the upper part of the pelvis, and, as usual, rested against the superior part of the os pubis; and during every pain, a small quantity of the waters pushed down the membranes at the back part of the pelvis. I waited to see if the child's head would advance, and though the os internum was fully open, would not

venture to break the membranes; because when I attended her at the birth of her first child, in the preceding year, the labour was lingering and tedious from the large size of the head, even though it had advanced further, and the membranes were broke. I was therefore loth to break them, until the head should come lower down; and she continued without any sleep or rest, subject to pretty severe pains at the interval of five or six minutes, till about seven in the morning, when, in spite of all my care to prevent her being fatigued, and the encouragement of the family physician, who was present, her spirits began to flag, she exclaimed she should die before delivery, and the friends seemed to be anxious and uneasy about her situation. During all this time, the head had not advanced in the least, nor were the membranes with the waters further pushed down. I introduced my finger into the vagina, and after two or three unsuccessful attempts, burst them during a strong pain, by which means a large quantity of waters was discharged, and the head forced down to the middle of the pelvis. This being effected, she was soon delivered of a fine child, though smaller than the former."

CASE II. "About three in the morning, I was called by a midwife to a woman in labour of her first child. I understood that the pains had been strong and frequent, and that the friends being uneasy, recourse was had to my advice and assistance. I examined during a pain, and found the mouth of the womb open to about the breadth of a crown-piece, though the os uteri was pretty thick and rigid. She had been fatigued by walking, and undergoing her pains standing, and in various other positions; had enjoyed little or no rest for two nights, and was very costive. I prescribed an emollient and laxative clyster, after the operation of which, I again examined during a pain, found the os internum much in the same condition, the membranes being strongly pushed down with the waters. When, upon the pains abating, the membranes became lax, I felt the child's head, which being touched by the finger, swam up and returned: a circumstance that plainly proved there was a great quantity of waters. I assured the patient and her friends, that the child presented fair, and that there was no apparent danger; then I advised the midwife to put her to bed, without exposing her to any further fatigue, or desiring her to force down, except when compelled by the pains; and in case she should not otherwise enjoy some rest, I prescribed the following draught.

(No. 2.) R. Aq. Menth. sativ. 3xiv.

Tinct. opii gt. xv.

Syr. papav. alb. 3ij. Misc.

She was directed to drink frequently of weak, warm caudle, to promote a diaphoresis. Next evening I received another call, when the midwife gave me to understand that she had taken the

draught, in consequence of which she had enjoyed refreshing rest and a plentiful sweat, although she had been frequently waked by the pains; and she told me that the membranes were not yet broke, although the mouth of the womb had been fully opened for four hours. When I examined, I found the membranes pushed down with a large quantity of waters, to the lower part of the vagina, and when the pain abated, felt the head pretty low. It still moved easily up and down, whence I concluded that either it was small, or the pelvis not narrow: yet as this was her first labour, I waited two hours, in hope that the membranes would advance further, and open the os externum; but they remaining in the same situation, I imagined their rigidity retarded the delivery, and breaking them in this persuasion, the child was soon delivered."

CASE III. "I was, early in the morning, called by a midwife to a woman who had been four-and-twenty hours in labour of her first child. I found the mouth of the womb largely open, the waters pushing down the membranes in a large globular figure, and as the violence of the pain abated, I felt the head of the child resting at the upper part of the os pubis. The midwife told me the patient had been in that condition several hours, but that she was afraid of breaking the membranes too soon, because she suspected that the woman was a little distorted and the pelvis narrow: however, the friends being concerned at her being so long in labour, and a discharge of blood supervening, she had thought it necessary to ask advice. After having twice again examined during pains, and maturely considering the case, I concluded that delivery was retarded by the rigidity of the membranes, which seemed to be thicker than usual; for, as the child's head swam up from the touch and returned, it was plain that it could not be engaged, and that there was a great quantity of the waters. Though she had not, to all appearance, lost above twelve ounces of blood, yet as the discharge seemed to increase, I broke the membranes during the next pain, a large quantity of waters was discharged, and the child's head was forced more backwards, towards the upper part of the pelvis. I likewise felt the os internum loose and soft; and as it was no longer kept on the stretch by the membranes and waters, she became perfectly easy, had no pains for a long time, and the flooding entirely ceased. Before the membranes were broke, she had felt a strong propensity to sleep, which the pains prevented; but now I ordered her to be undressed, put naked in her bed, and kept quiet, that, if possible, she might enjoy some natural repose. She accordingly rested and was refreshed. As for the blood she had lost, she was rather benefited than injured by the discharge, for she had for some weeks complained of drowsiness, fulness in her eyes, with pains and giddiness in the head, which were now removed, in-

so much, that she had declared herself much more light and easy. I desired the midwife to indulge her in her repose, and when the pains should return, to let the labour proceed in a slow and easy manner, allowing time for the head to stretch the vagina and external parts; and I told her, that the patient being strong and healthy, nothing else was necessary, but that she should frequently drink weak caudle, broth or barley-water, to encourage and support a plentiful perspiration. I was afterwards informed, that she slept several hours, and upon the return of the pains was safely delivered by the midwife."

CASE IV.—"I attended a gentlewoman, though not in labour of her first child, who suffered all the complaints described in the preceding case, except the flooding. By my advice, she lost eight ounces of blood, and was immediately relieved: but the labour being retarded by the rigidity of the membranes, though the child's head was pretty far advanced in the pelvis, they were broke, and in two or three pains after, the woman was delivered."

From the Rigidity of the Membranes when not protruded by the Waters.

CASE I.—"I was, about four o'clock in the morning, called by a midwife to a woman whom she had formerly delivered with ease; but now she had been in strong labour for many hours. She said, the waters had been draining off for the space of three hours, and she had every pain expected the delivery, which she supposed was retarded by the child's being large and dead. I found the child's head about two-thirds down in the pelvis, and during every pain perceived the discharge of a very little water, which I at first mistook for that of the uterus. But upon the cessation of a pain, raising the head a little with my finger, I observed a large quantity was discharged from the bladder; and when I felt for the hair of the scalp, I found the membranes smooth and unbroken. I again raised the head, that the patient might discharge more urine, and then the membranes split. By the next pain the head was forced down to the os externum, and in a very little time the child was delivered."

CASE II.—"Soon after I attended a woman in labour of her first child, and could feel no waters, though the head and membranes had gradually opened the mouth of the womb, and were forced down to the middle of the pelvis; where, however, they remained near two hours. As I could insinuate my finger all round the under part of the child's head, felt the ear at the os pubis, and distinguished the sutures, I concluded that the head was not large, nor the pelvis narrow; but that this delay must proceed from the rigidity of the membranes. These, therefore, during a pain, I endeavoured to wear thin, by rubbing them with the edge of my nail, which was smooth and short: accordingly in time of the next pain, they split upon the head, which was

immediately forced down to the os externum, and this being gradually dilated, the child was delivered."

"I have been concerned in many cases of the same kind, where labour was retarded by the rigidity of the membranes; but as I have frequently known tedious and lingering cases proceed from too much precipitation in breaking the membranes, I choose rather to err a little on the other extreme, provided the patient is in no danger from weakness or flooding."

From the Membranes breaking too soon.

CASE I.—"My attendance was bespoke to a patient who was very fat and unwieldy. She had been taken with some very slight pains, and the membranes breaking, a great quantity of waters was discharged; upon which, being called in a great hurry, I found the mouth of the womb open to about the breadth of a fixpence, and thin, though rigid. She had been, five years before, delivered of a child which, followed immediately after the rupture of the membranes, and she now expected the same expeditious delivery. I told her that there was a great difference between that labour and this, occasioned by the long interval, by her present corpulency, and the precipitate discharge of the waters, which might render the case more tedious; though, as the pains were trifling, and the child presented fair, I encouraged her to exert her patience, to banish all anxious thoughts, and avoid all manner of fatigue; and as she was costive, I prescribed a clyster, which had the desired effect. After this period, she continued three days and three nights in a lingering kind of labour, before the mouth of the womb was sufficiently dilated; so that I was obliged to give her an opiate every evening, and direct her to reserve her strength by lying mostly in bed. The os internum being fully opened, the pains grew stronger, and she was soon delivered of a very small child."

CASE II.—"I was called to a poor woman, who had been two days in labour of her third child, and found the os uteri open to about the breadth of a shilling, the lips being thick but soft; the membranes were broke, the child's head rested at the upper part of the pelvis, and the patient laboured under a looseness, which probably had brought on some slight pains. She had been attended by a person of no education or practice in midwifery, who finding the membranes broke, imagined it was his business to promote the delivery with all possible expedition; and with that view, fatigued the patient excessively, by ordering her to walk about and bear down with all her force at every inconsiderable pain.

"The woman being quite exhausted, I directed her to be put to bed and kept quiet, and leaving a gentleman and midwife,

who at that time were my pupils, I desired them to give her five grains of the pilula saponacea, and repeat the dose once or twice, if there should be occasion. By these means she was freed of pain, procured rest, and recovered her exhausted spirits. She continued easy for two days, except in time of some slight pains, which every now and then recurred, and during which a small quantity of the waters continued to be discharged; but on the third night the pains increased, the os uteri became softer, and was more and more dilated by the child's head. This advancing, plugged up the parts, so as that the dribbling of the waters ceased, and in a very little time the woman was safely delivered."

CASE III.—"Soon after this occasion, I was called to a labour by a gentleman of very little experience in the practice of midwifery, who taking me aside, told me he was just going to deliver a woman whom he had attended a night and a day; and that, as his character was not established, he thought it advisable to have a person of the profession present. Indeed I was struck with his apparatus, which was very extraordinary, for his arms were rolled up with napkins, and a sheet was pinned round his middle as high as his breast. His intention was to turn the child and deliver footling; and he desired me to examine the woman, that I might satisfy the friends of the necessity he was under to take this step immediately, for the preservation of the mother and the fruit of her womb. I felt the os internum open to the breadth of a crown piece, and the head presenting, and after having fully informed myself of every circumstance necessary to be known, I concluded that the labour had been rendered tedious from the premature rupture of the membranes. I then gave the gentleman a friendly advice in private; in consequence of which he laid aside his working dress, and as the woman, who was strong, had enjoyed no rest the preceding night, an opiate was administered. She slept several hours, and was refreshed, and towards morning the pains returning, delivered the child and *secundines*. I have assisted in a number of such cases, where, by a cautious management, the parts were gradually opened, and the woman safely delivered. In many women, I have known the membranes broke several days, weeks, and even months, before labour; and provided they were not much weakened, they have been delivered with ease. In my practice this case has chiefly prevailed among fat women, and may perhaps be owing to laxity."

CASE IV.—"An accoucheur was called to a woman in labour, near Norwich. The waters had been draining off for two days, during which she had enjoyed no rest. She was very weak and low spirited, had violent reachings, with a singultus; and when he examined, he found the child's head presenting. He directed her to be put to bed, prescribed an anodyne draught, in consequence of which she had a refreshing sleep of two or three

hours ; then the pains, which were weak before, grew strong and more frequent, and the woman was safely brought to bed.

“ He said, he could have delivered with the forceps, but followed my advice, which was, never to use them but when they are absolutely necessary. The same method he has successfully used upon several occasions.”

CASE V.—“ I was called to a patient in labour of her first child. The membranes broke in the evening, and she had frequent pains all night, but would not allow me to examine till about eight o'clock next morning, when I found the child's head resting above the pubis, and the os uteri soft and lying loose, as if it had been pretty largely opened before the membranes broke ; but the vagina was very strait, as well as the os externum. She enjoyed no rest all night, the pains grew excessively strong and frequent, and the child's head had not advanced in the least. Being apprehensive, from her violent complaints of the abdomen, that the uterus would burst by such strong efforts, I prescribed a paregoric draught to allay the violence of the pain and procure sleep. As she had been used to take opiates, the dose amounted to thirty drops of the tinct. opii, with ʒij. of syr. de meconio, and some simple cinnamon water. This prescription had the desired effect : she slept several hours, though every now and then her sleep was interrupted by a strong pain. About twelve that night, when the effect of the opiate was worn off, her violent pains recurring, I was allowed to examine again, and finding the head still in the same situation, the draught was repeated. This kept her tolerably easy till eight in the morning, when the pains returning it was again administered : for the same reason it was repeated at six in the evening, and four in the morning. About eight, I was permitted to examine the third time, when I felt the head pitched down in a lengthened form to the middle of the pelvis ; but the lower part of the vagina was still very narrow, as well as the os externum, and time was required for dilating both, and for pushing down and elongating the head, which was large. At the beginning of labour she had some loose stools, but made no water for three nights and two days ; so that when the effect of the opiate ceased, the distension of the bladder aggravated the agony of her sufferings ; yet no persuasions would induce her to let me draw off the urine, and I was again obliged to repeat the opiate. Her strong pains, which every now and then recurred, she endeavoured to suppress, lest I should desire to examine ; and would allow nobody to be with her but the nurse. At length, I was in the evening suddenly called from another apartment, and finding the head almost delivered, I had just time to prevent the laceration of the external parts. I felt a languid motion in the vessels of the funis ; but could not, by all the usual methods, bring the child to breathe. I brought away the pla-

centa, found the uterus in a right state, and immediately drew off a large quantity of urine with the catheter. Nevertheless, I was obliged to repeat the draught four or five times in four-and-twenty hours, because she could neither rest nor sweat without it, her pulse flagged, and her spirits sunk, and no other cordials had the least effect. After delivery, her urine was obstructed for three days, and for eight weeks afterwards she lost the power of retention, which, however, returned with her strength. As for the child, it was probably lost by her timorous disposition; in consequence of which she refused all assistance at the latter end of labour."

Lingering and tedious Labours, from the Forehead's being prevented from turning backwards into the lower and concave part of the Sacrum.

CASE I. "I was called to a woman who had been long in labour of her first child, and was naturally of a weak and delicate constitution. On that account the midwife told me, she had kept her mostly in bed, and done nothing to fatigue her. She said the labour had gone on very well, though the pains were slight and at long intervals; and that since the discharge of the waters, the child's head had advanced slowly to the external parts, where it had stopped for a considerable time. This account I found true, upon examination. A clyster had been administered with good effect, and the patient had enjoyed a good deal of sleep between the pains; but finding her pulse rather too weak and languid, I directed her to take two spoonfuls of the following mixture every half hour.

(No. 3.) ℞ Aq. cinnam. ℥iv℥.
 Spirit: cinnam. ℥i.
 Ammon. præp. ℥℥.
 Conf. aromat. ℥i.
 Syr. simp. ℥℥. Misce.

"I attended some time without perceiving that the head advanced to open the os externum. I felt one of the ears at the os pubis, the lambdoidal crossing the end of the sagittal suture at the lower part of the right os ischium, and the fontanelle on the opposite side at the upper part of the left. I perceived that the pains had not force enough to move the occiput from the right ischium, so as to pass under the os pubis, and the forehead from the opposite side to the hollow of the os sacrum. I therefore, during the next pain, introduced my fingers towards the child's left temple, and turned the forehead backwards to the os sacrum. The narrow part of the head being now towards the sides and lower part of the pelvis, the vertex immediately advanced forwards, gradually opening the os externum during every pain; and the wo-

man being safely delivered, the placenta separated slowly, and was discharged in about half an hour."

CASE II. "I was called to a woman in labour of her first child, and found the midwife and another male practitioner in waiting. This last gave me to understand, that when he came, the patient had been a long time in strong labour; that after the mouth of the womb was sufficiently opened, the membranes had broke, and the pains gone off for some time, though they returned with greater violence, and forced down the head to the lower part of the pelvis, beyond which situation it had not advanced in a whole hour; that he had attempted to deliver it with a lack or fillet, which he had procured as a great secret, but the head being large, he could not fix it properly, neither could he, after repeated trials, bring the child by the feet; so that he concluded there was an absolute necessity for opening the head. Upon examination, I found the head in the same position as that described in the preceding case, or rather higher in the pelvis. The pains were tolerably strong, the woman's pulse was much more quick than is usual even in time of pains. She complained of a violent head-ach, laboured under great drought, and her skin was very hot and dry. Of these complaints, however, she was relieved by losing ten ounces of blood from her arm. I told the gentleman, that as the patient was strong, and the pains continued, we ought to wait the efforts of nature, without using either forceps or fillet, which I never applied, except to assist nature when she was too weak. When I examined again, I found the head lower down, and moved the forehead backwards towards the os sacrum; so that the crown of the head advancing, opened the os externum, and the patient was soon delivered of a child of an extraordinary size. But the fillet having galled and torn part of the hairy scalp from the occiput, was the occasion of a violent inflammation, of which the child died in a few days. The mother, however, recovered tolerably well, and since that time has had pretty easy labours."

CASE III. "I was called by a midwife to a very fat woman, near the age of forty, in labour of her first child. The membranes had been long broke before I came, and I understood that the friends being uneasy, had sent for a gentleman of the profession, who, in attempting to deliver the patient, said he had broke his instrument, and went home in order to fetch another: but, instead of returning, he sent a message, importing that he was obliged to go and attend another woman. Her pains being strong, the os externum and lower part of the vagina were gently dilated, and the forehead being moved backwards at the same time; the head advanced, and the woman was delivered in about half an hour after I arrived.

"There was a very small opening through one of the parietal

bones of the child's skull, yet none of the cerebrum was evacuated, though a great deal of blood was discharged, notwithstanding the application of proper compresses, and the poor child died moaning, in five or six hours after its birth."

CASE IV. "In the course of the same year, I was called by a gentleman who had formerly attended me for a short time, in behalf of a woman whom he had attempted to deliver with the forceps. He said, he was sure they had been properly applied, that he had pulled with great force without being able to move the child's head, and that the woman was in such imminent danger, he did not believe she could live until we should reach the house. Notwithstanding this declaration, I found her pulse strong and good, as well as the pains, and that not above one third part of the head had come down into the pelvis. I likewise understood she was used to have tedious labours, proceeding, in all probability, from the small size of the pelvis. I privately convinced the gentleman of his error, observing, that as the pains were good, no force ought to be applied; that the forceps would never succeed, except when the head was come lower down, and even then ought not to be used, unless the woman was in danger from weakness and want of labour pains. We prescribed a mixture to amuse the patient, and in about five hours she was safely delivered."

From the Vertex presenting, though low in the Pelvis, the Forehead being towards the Os Pubis.

CASE I. "I was called by a midwife to a woman whom she had attended near two days, and whose former labours had been very easy: from which circumstance she inferred, that in this case the child was of an extraordinary size. I found the fontanelle towards the left groin, and the lambdoidal crossing the sagittal suture at the right side of the os coccygis. The os externum I gently opened during every pain, raising the head a little when the pain began to abate, and moving the forehead to the left side of the os pubis. As the next pain increased, I withdrew my hand, which was followed by the child's head, and the woman was in a little time delivered."

CASE II. "I attended a gentlewoman who had been easy in her former labours. When I was called, the membranes were broke, and the mouth of the womb was largely open; though the head advanced very slowly. At length, feeling the vertex at the lower part of the coccyx, and the fontanelle below the pubis, I attempted, but to no purpose, to raise the head, and move the forehead to the right side of the pelvis. Yet, when I withdrew my hand, the head was forced lower down by a strong pain, the vertex protruded the perinæum and posterior parts, in form of a large tumor, the forehead, face, and chin, turned immediately out

from below the pubis, and the vertex was raised upwards, with an half round turn, from the perinæum and posterior parts. The child was small, and cried as soon as the head was delivered, even before the body was extracted."

From the Presentation of the Fontanelle.

Dr. Smellie was often concerned in cases where the fontanelle presented. He says, they commonly proved tedious and lingering, though the delivery was generally effected by the labour-pains, and the child's head sometimes appeared in form of a sow's back; a circumstance, in all probability, owing to the pressure it sustained in the pelvis, while it advanced in that unusual way. Sometimes in these lingering labours, by raising up the forehead with his fingers, he altered the position, so as to let the vertex sink lower down, particularly in the following instance:

CASE I. "I attended," says he, "a gentlewoman, whom I had formerly three times delivered, and she had easy labours. The os uteri was now fully open, and the membranes broke soon after I arrived. Yet the head did not advance as usual, but rested at the upper part of the pelvis. As she had been long fatigued with severe and fruitless pains, I examined the position of the head more narrowly, and plainly perceived the fontanelle presenting in the middle; but I could not certainly discover how the forehead lay, until I had gradually opened the os externum during the pain. I then found that the vertex was to the left side, and the forehead with the face to the opposite part. As she lay in bed, upon her left side, I could not so easily assist in that position: she was therefore turned on her back, her head and shoulders being raised a little with pillows, and her knees held up towards her belly, as she lay across the bed; for her pains were also stronger while she continued in this posture. In the beginning of a pain, I gently introduced my right hand into the vagina, and raised up the forehead and face; as the pain increased, I withdrew my hand, and found the vertex sink down to the lower part of the left ischium. In a few pains, the forehead turned backwards, the hind head came out below the pubis, the os externum was gradually opened, and the child safely delivered."

From the Presentation of the Forehead.

CASE I. "I was called to a woman in labour, by the friends, who were uneasy at the lingering case, and imagined the midwife kept her in hand, because she had been several times delivered by another midwife, and her labours were easy. I was informed that the os uteri was fully opened, and the membranes had been broke several hours; that the child presented fair, and the pains were strong, yet the head had advanced very little, though since I had been sent for, the child had descended considerably lower

in the pelvis. Upon examining in time of a pain, I really imagined the vertex presented, and thought I felt the fontanelle to the side, as in other cases; but when the head advanced, in consequence of the succeeding pains, and protruded the perinæum and posterior parts, I felt the eyes and nose on the contrary side, towards the lower part of the os ischium. In another pain or two, the os externum being sufficiently dilated, the face turned in below the os pubis, over which the chin turned upwards; the fontanelle, vertex, and hind-head, were raised, and came out with a semicircular turn from the perinæum and parts below, and the body was delivered by the same pain.

“The child was small and dead; its forehead was raised up in form of a sugar-loaf, the vertex being pressed flat, and the face and hairy scalp very much swelled.

“The mother, for several days after delivery, complained of great pain in her back and at the pubis, which seemed to proceed from an over-straining of the ligaments at the juncture of the bones; but by lying quiet, and drinking plentifully of warm and weak diluting fluids, she fell into profuse sweats, and soon was freed of these complaints.”

CASE II. “In the following year I assisted in a similar case, where the head was high up, and had long rested at the brim of the pelvis. At first, I thought it presented fair, but as it did not advance for several hours, notwithstanding the strong pains, and I was told, that the patient had been delivered of her second and third child before the midwife could reach the house, I concluded that the head did not present in the common way, and introduced my hand slowly into the vagina, as she lay on her left side. Finding the forehead presenting with the face to the right ilium, I pushed it up to that side, and as I withdrew my hand a little, still pressed it up with my fingers, that it might not return before the next pain, which forced down the vertex from the opposite side; then the head descended gradually, and the woman was delivered in a few pains.”

From the Presentation of the Ears.

Dr. Smellie records a few cases in which the ear presented. When the child was not large, he says, the pains commonly altered the position, by forcing down the vertex, and the patient was easily delivered. This was commonly the case too, when the fontanelle presented; but when the head was large, the labour was more tedious and lingering, upon which occasion he usually pushed up the head so as that the vertex might advance, particularly in the following instance:

CASE I. “Being called by a midwife,” says he, “to a woman who had been long in labour, I introduced my hand into the vagina, and finding the ear presenting, could perceive, when I raised

the head, neck, and shoulder, to the back part of the uterus, lay over the pubis, the face being to the right side. As all the waters were discharged, it would have required great force to turn the child so as to bring it by the feet; I therefore raised the head higher, forcing the forehead upwards, and the vertex coming in as I withdrew my hand, the child was presently delivered."

From the Presentation of the Face, of the Shoulder, and of the Breech.

CASE I. "Being called to a woman, who had been a great many hours in labour, after the mouth of the womb was fully opened, and the waters discharged, I found the head low down in the pelvis, the face presenting the chin at the lower part of the pubis, and the cheeks so excessively swelled, that at first I imagined the breech presented, until examining a second time with my fingers, I felt the mouth, eyes, and nose. When the friends asked if the case was dangerous, I precipitately answered, that there was no great danger, but that of losing the child, which might be saved, if the mother was soon delivered. They replied, that provided the mother was safe, the child was of no great consequence, as she had already more children than she could well maintain. The patient told me she felt the child stir every now and then, and indeed I plainly felt its motion by laying my hand on her belly. However, as every body present declared against my giving any assistance, and were satisfied with my telling them that the woman was in no immediate danger, I left her to the care of the midwife, who indeed had opposed my being called. I could easily have delivered her with the forceps, and ought to have said in general that there was danger in the case. I knew the child's head was small, and that the delivery was retarded either by the navel-string, or the contraction of the lower part of the uterus, round the neck, or before the shoulders; for the head was pulled up as the pains abated.

"This visit I made in the forenoon, and the child was not delivered till the evening, when I was called again in a great hurry to bring away the placenta, which was easily extracted. I examined the child, which was dead, and found its head squeezed to a great length, the face and neck being much swelled and of a livid colour."

CASE II. "I examined one of the poor women, attended by my pupils, in labour of her first child, which lay very high, and I thought I felt the breech presenting. The membranes had broke when the mouth of the womb was dilated to the breadth of half-a-crown. The pains being slight and the woman strong, I desired the gentleman to let the breech be pushed down gradually, and slowly dilate the os internum, and in the mean time I left a midwife to attend, and directed her to give us notice

when the dilatation should be effected. In about three hours I was called again, and understood from the midwife, that after the mouth of the womb was fully opened, the child descended very fast, presenting at first with the cheek, but that now she plainly distinguished the face. When I examined, I found the chin down to the lower part of the left ischium, and turned up below the pubis. In a few pains, the os externum being sufficiently dilated, the forehead and vertex turned up from the perinaeum, and the woman was immediately delivered of a small child, before any of the pupils arrived."

CASE III. "I was called to a woman in labour, by a midwife, who told me she found the opening of the child's head below the share-bones, and imagined the child came wrong, with the forehead to that part. At first when I examined I was of the same opinion; but during the next pain, which was very strong, I found the head was pushed down much lower at the back part of the pelvis. Feeling at that part with my finger, for the lambdoidal suture, I plainly distinguished the face, and the chin backwards at the coccyx. In two pains more, the face and forehead protruded the posterior parts in the form of a large tumor, the perinaeum and fundament were greatly lengthened, the vertex and occiput slipped out from below the pubis; then the forehead and face turned up from the perinaeum, which being thin, I supported it with my hand, and the woman was delivered of a small child. Her pelvis was large, and she used to have very quick labours."

CASE IV—"I attended a gentlewoman, whom I had twice before delivered, after tedious labours, proceeding from the largeness of the children and the small size of the pelvis. When I was called on this third occasion, the mouth of the womb was open to about the breadth of a crown-piece, the membranes and waters were very tense during a pain, but being relaxed when that abated, I felt some part of the child, though more unequal than the apex of the head. Having waited, till by degrees the membranes had fully opened the parts, and were pushed down to the lower part of the vagina, I examined again, and felt the child's face presenting through the membranes. Reflecting upon her former tedious labours, and foreseeing that if I allowed the head to come along in that position, the patient would suffer, and that if I should bring it by the feet, the child might be lost; I directed her to be laid on her back, with her breech to the foot of the bed, and supported with pillows, between a sitting and a lying posture, on pretence that the labour would be favoured by such a situation. While a woman sat behind supporting her head, and one on each side held up her legs and knees, I gradually dilated the os externum during the pains, until I could introduce my hand into the vagina. In pushing it farther up, I felt the membranes break, but my hand still advancing, the os externum was plugged up

by the lower part of my arm, which hindered the waters from being discharged, until feeling the chin to the right, and the forehead to the left side, I raised this last upwards, grasping the vertex, which was now lowermost, with my fingers and thumb. I then gently withdrew my hand a little, to let the waters pass, that the uterus might be contracted, and keep the child in that position. Finding this expedient succeed, I drew forth my hand, when the patient thought the child was delivered. However, I convinced her that what I had done was absolutely necessary, and that she was now in a fair way of delivery, provided she would exert that courage and patience which had supported her in her former labours. Nor was I disappointed in my prognostic; for this delivery was much quicker than those she had experienced before."

CASE V.—"I was called to a woman in labour, by a midwife who had formerly attended my lectures: she informed me that the mouth of the womb was largely open, and although the membranes were not broke, she could find something like a hand and fingers: she likewise told me, that the woman was strait made; that she had delivered her once before, when the labour was very tedious, and the head of the child, which was dead born, squeezed to a great length. I found every thing as she had described, and felt besides, something like the shoulder or hip, which I was certain could not be the head. As her former labours had been difficult, and I was afraid the child would be lost, should it be brought by the feet, I resolved to seize the opportunity of trying to bring in the head, since the membranes were not broke. I accordingly acted pretty much in the same manner as in the preceding case; but found greater difficulty in bringing in the head, which was more slippery and large than in the former instance: besides, I lost a great quantity of the waters, by being obliged, after I had pushed up the shoulder, to withdraw my hand a good way before I could bring in the head, and in attempting to raise up the hand that came down with it. The vertex being turned down, and one of the ears towards the vertebræ of the loins, I withdrew my hand, when the forehead with the right-hand was to the right, and the occiput to the left side of the pelvis, and the pains ceased for some time, as usual, after the membranes are broke. Having now encouraged the woman, by telling her that the child presented fair, I took my leave, and in about three hours, she was safely delivered, though not without very strong and severe pains."

CASE VI.—"I was called to a woman, whom I had before delivered of a child that presented wrong, though I could not save it by reason of her narrow pelvis. On this occasion, she had been subject to frequent, though slight pains, the day before I saw her; towards morning the membranes had broke, a small quantity of the waters was discharged, and she had no more pains till my arrival. Upon examining, I found some part presenting, which could nei-

ther be the head nor breech, and I afterwards discovered to be the breast. As the pains had ceased, I was in hopes that some of the waters was left in the uterus, although the membranes were broke; and going to work as in the two former cases, brought in the vertex, with great difficulty, occasioned by the slipperiness of the body and head, which last, was, after many efforts, and the return of strong pains, squeezed down in a longitudinal form, and the woman safely delivered."

In these cases the scientific accoucheur is seldom called in by the midwives before the membranes are broke, otherwise in præternatural positions, a better opportunity would offer to bring in the vertex, when the pelvis is so small, or the head so large, that the child cannot be saved, if brought by the feet.

CASE VII.—In this case, which occurred at Chatham, the accoucheur was not called till the waters had been discharged several hours; and he found the face presenting lower in the pelvis, the chin being towards the right ischium. After the woman had undergone several pains, which did no service, he resolved to deliver with the forceps; but just when he was about to apply them, she was seized with a strong pain, during which he assisted with his fingers in moving the chin towards the pubis, and the child was safely delivered.

CASE VIII.—"In this case," says the writer, "I examined the woman, and felt the child's face presenting. I understood that she had undergone two tedious labours before, though the children were very small; whence I concluded her pelvis was narrow, and in passing my hand into the vagina, I found it so. Upon which I laid aside all thoughts of turning the child, and delivering by the feet, as I should have done had the pelvis been large. The face being high up, and her pains very strong, I waited to see if they would bring it lower down; and in about six hours my expectation was answered, the chin being at the left ischium. I then, during the pains, endeavoured to raise it to the os pubis with my finger, and in that manner the child was delivered. The head was squeezed into a long form, the parietal bones were pressed one over another, and on one side of the head was a very deep impression formed by the jetting in of the os sacrum. The face was very much bruised and swelled, and the child dead. I prescribed an opiate for the woman, who had undergone great fatigue; she enjoyed good rest and did well."

Tedious Labour from the Rigidity of the Os Uteri.

CASE I.—"I was called to a woman turned of forty, in labour of her first child, who, though by her own and midwife's account, she had three or four weeks to go, had been in a kind of lingering labour for two days. At six in the evening the membranes broke, and as she lived at a distance, I could not be with her, till about

four next morning, when the midwife told me that after the membranes broke, she had every now and then a strong pain, but that the mouth of the womb was not opened as usual by these pains, and she was afraid that the womb altogether would be pushed out of the body, through the os externum. Upon examining in time of a pain, I found the mouth of the womb open to about the breadth of half a crown, but thick and rigid, and forced about half an inch without the os externum, which was pretty much dilated, and I felt the child's head presenting. There was an intense heat at the mouth of the uterus, and she complained of great pain in that part, even in the absence of the labour-pains. She was of a strong and healthy constitution, though of a thin habit; her pulse was quick, full and hard, her skin hot and dry: she laboured under a severe drought, and I understood she had from time to time swallowed cordials to assist the labour, such as white-wine and malt spirit. Having considered the circumstances of the case, I concluded that the difficulty of delivery was owing to the rigidity of the os internum, for she had lain chiefly on the bed, without having been fatigued; that the head was but small, because it had pushed the mouth of the womb so low down, and that the fever was owing to an indiscreet use of spirituous liquors. In consequence of these reflections she was bled at the arm to the quantity of twelve ounces, directed to drink plentifully of barley-water, kept in bed, lying on one side, her breech being raised a little higher than her body, and during every pain I kept up the uterus and head with my fingers, so as to resist and abate the violent force of the pains. By these means, she was greatly relieved, enjoyed between whiles gentle slumbers and plentiful sweats: the mouth of the womb became more soft and yielding, and when largely dilated, I pushed it gently up with my fingers all round the head, which at last glided easily along, and was delivered. I took the same precaution in delivering the shoulders and body, desired the midwife to confine her to her bed longer than the usual time, and advised her to abstain from any violent exercise for a considerable time after she should be able to walk, in order to prevent a prolapsus uteri. I was afterwards informed that she recovered very well, without being exposed to any such complaints in the sequel."

CASE II. "I attended a patient near forty, in labour of her third child, who had been afflicted with a prolapsus uteri, since her last pregnancy. When I was called, she had some slight pains, the mouth of the womb was very little open, seemed thin and rigid, and was situated more forwards in the vagina, than is commonly the case; the child's head was pressed low down, and seemed small, but I could feel no waters. Her pulse being very quick, she was bled to the quantity of eight ounces, and an emollient and laxative clyster being injected, discharged a great quantity of hard feces; and as she had enjoyed no sleep that day or the preceding

night, I prescribed an anodyne draught, and directed her to drink plentifully of barley-water. These expedients succeeded to my wish; she slept and sweated during the greatest part of the night, and I was called again in the morning, when the pains grew stronger and more frequent. I then found the mouth of the womb much more open, though pushed down without the os externum; I likewise felt between my fingers the hair of the child's head, though the patient was not sensible that the membranes were broke, or the waters drained off. During every pain, I kept up the child's head, and the mouth of the womb, which I gradually dilated with my finger, till being fully opened, it easily slipped up all round the head, and this afterwards opening the os externum by degrees, was safely delivered."

CASE III. "In the course of the same year, I was bespoke to attend a woman, who had been subject to tedious labours. When called, I found the child's head pushed down to the anterior part of the uterus, so much at the fore-part, that it was some time before I could feel the mouth of the womb, which was tilted backwards and upwards to the upper part of the os sacrum. In a few pains, the head pushed down the uterus below the pubis, to the os externum, when I felt the os uteri very thin and soft; and the patient complained of great pain from this protrusion of the lower part of the womb by the head. However, she was in a great measure relieved by my pressing against it with my fingers. At the same time, introducing the fore-finger of my other hand into the mouth of the womb, I brought it forwards to the pubis, and kept it in that position during several pains, which gradually dilating it, the head was pushed lower and lower, and by degrees I slipped up the mouth of the womb, betwixt the pubis and head, which afterwards made very quick advances, and was soon delivered."

CASE IV. "I attended a woman in labour of her first child, whose belly was pendulous, and hung forward over the pubis. When I came she was pretty strait laced, the pains were strong, the membranes pushed down with the waters, the os internum was backwards and high up, felt thick and rigid, and was opened to about the breadth of half a crown. I directed her to unlace, desired the nurse to make the bed so as that her breech might lie higher than her shoulder, and to raise up the belly with her hands in time of a pain. The mouth of the womb was gradually dilated, the membranes broke, and the child's head advanced lower in the pelvis: but the os internum remaining still backwards, and the head pressing down the lower and anterior part of the uterus, I was obliged to assist, as in the former case, until the head was forced down, though it dilated with great difficulty, and to stretch the os externum, from time to time, before the child could be delivered."

CASE V — "I was called to a patient not above fifteen years

of age, in labour of her first child, and found the head of the child presenting, and that the membranes and waters, after having slowly dilated the os internum, advanced quite to the os externum, which I hoped they would open also; but they broke just as they arrived at the part. Then the head advanced and pushed out the lower parts, in form of a large tumor, the perinæum being very thin, and stretched to the extent of five fingers. Nevertheless the os externum was very little dilated, and the pains were so strong, that I was obliged to press the flat part of my hand upon the parts, to prevent the fourchette from being torn, and by resisting the force of the head against the os externum, allow it time for gradual relaxation. The pains continuing to return every five or six minutes for the space of an hour, without any alteration, I found it necessary to prescribe an opiate to restrain them, that I might have time to lubricate with pomatum, and dilate gently with my fingers. By these means the os externum was gradually stretched so as to allow the head to pass without any laceration of the parts."

CASE VI.—"About the same time, I attended another patient, though not so young, and the labour proceeded much in the same manner: but after having guarded the parts, in order to prevent laceration, during a few pains, I withdrew my hand to take some pomatum, for lubricating the external parts. In that interval a strong pain returned, contrary to my expectation; and, before I could replace my hand, the child's head was delivered, and the perinæum torn quite to the anus. This accident was owing to my hurry and precipitation, in consequence of which I passed my hand on the outside of the sheet, and before I could disentangle it, the damage was done."

Ever after this misfortune, when Dr. Smellie attended women in labour of their first children, he always turned up and pinned the upper sheet to the bed-quilt, as the child's head advanced to the lower part of the pelvis.

CASE VII.—Dr. Austin, of Edinburgh, was called to a young woman in labour of her first child, who had acute pains from Tuesday till Saturday night, when she was delivered. All that time the child's head was squeezed in the pelvis, and for twenty-four hours the bones rode one another in the vagina. About two hours before she was laid, he attempted to introduce the forceps, which, however, he declined using, because the pains became stronger, and he imagined the child was dead. Indeed, to all appearance it was still-born, but in a few minutes he was agreeably surprised to find it alive, and both the mother and the child did well. Two days after delivery, he extracted from the woman five English pints of urine with the catheter.

Lingering Parturition from Weakness.

CASE I.—"I was called to one of the poor women whom my

pupils attended, in labour of her first child. She was young, and ~~so~~ excessively weak from want of nourishment, that when we were called, she seemed really expiring. Another patient who lived in the same house, said, this young woman was an entire stranger, who had been taken in as a lodger the preceding night, and seemed to be in a starving condition; and at last the poor creature herself owned, that she had received no sustenance but water, for the space of three days. She had been subject to some slight pains all the former day and night: when I examined, I found the mouth of the womb largely open, the membranes broken, and the head presenting; but the pains were at long intervals, and her weakness so alarming, that I immediately sent for a roll and some ale, which was qualified with a little sugar, nutmeg, and geneva, to which last I supposed she was accustomed, and therefore judged it was a better cordial than any other I could have prescribed from an apothecary's shop. Of this nourishment I directed her to take a very little at a time, and accordingly her exhausted spirits were gradually recruited, inasmuch, that although the case was lingering and tedious, she was safely delivered by the labour-pains."

CASE II.—"I was, by a midwife, called to a woman of a weak habit and melancholy disposition, occasioned by the excessive flooding which had attended a former delivery. She had become pregnant again, before she recovered her strength, was seldom able to rise out of bed, and her stomach was so weak, that it could receive or digest but very little nourishment. The midwife told me her pains were so weak, she was afraid she could not be delivered without assistance; that she had enjoyed little or no sleep for the space of forty-eight hours, but had been subject to frequent faintings, from which she was with difficulty recovered; and lastly, that the mouth of the womb was soft and a little open. I felt her pulse very low, and examining during a pain, which feebly protruded the membranes and waters, perceived the child's head: then bringing forwards with my finger the os uteri towards the pubis, I found it much more open than the midwife imagined, and felt some indurated feces in the rectum. I was also informed, that as she had an aversion to all sorts of nourishment, she ate very little, and seldom had passage in her belly, and was commonly constipated.

"I directed her to take frequently a teacupful of chicken-broth, and between whiles a little of the weak cinnamon-water. A clyster of the broth being thrown up, emptied the intestines; then half a pint of the same, in which two grains of opium were dissolved, being injected, I desired that she might be kept quiet in bed, in hope of procuring her sleep, and take an ounce of strong cinnamon-water every four hours. By these means the faintings went off, she slept pretty well that night between the pains, and these gradually increasing, she was safely delivered in the morning."

CASE III.—“ I attended a gentlewoman, in labour of her third child. She was of an hypochondriac disposition, went seldom abroad, towards the latter end of pregnancy, could hardly be kept out of bed, was, in the beginning of the eighth month, attacked with frequent reachings, so as to vomit up every thing she ate or drank, by which complaint she was reduced to a state of excessive weakness, from want of nourishment.

“ I ordered the nurse to inject about half a pint of beef or mutton broth, by way of clyster, five or six times a-day, to prevail upon her to rise frequently and walk about the room, and likewise to go abroad sometimes in a coach.

“ By this method she recruited a little, and with the assistance of some mint and aromatic waters, she could keep a little broth in her stomach. I managed her much in the same manner as that described in the former case, in time of labour, which, though tedious, ended happily.”

From Anxiety and Grief.

CASE I.—“ I attended a gentlewoman, in labour of her first child, who, a few days before, had been so much affected with the sudden death of her husband, that she was seized with frequent faintings and great anxiety of mind. When I arrived, her pains were very weak, and the membranes had broke even before the mouth of the womb was much dilated. Although the child's head was small, she continued three days in a kind of labour: yet, by encouraging and supporting her with cordials and nourishing things, and indulging her as much as possible with rest, she was safely delivered of a child, which seemed to have died soon after she heard the melancholy news of her husband's death.”

CASE II.—“ I was called to another gentlewoman, in the same circumstances, overwhelmed with anxiety in consequence of her husband's death, which had happened about two months before her labour. I found her so low, and the case was so tedious, that I was afraid she had not strength to undergo the delivery. Yet by the management described above, she was safely delivered of a weakly child.”

Dr. Smellie observes that he has attended many other women in labour, whose lives were endangered by great weakness, proceeding from various causes; yet, by such management they were safely delivered, Anxiety, misfortune, and disappointment, frequently reduce women in labour, to the verge of death. Labour is often brought on by frighs proceeding from different accidents, such as that of fire in the neighbourhood. The earthquake in the year 1749, produced several cases of this kind; and any thing that affects the passions to a degree of violence or transport, will have the same effect. On these occasions, if the child is small, delivery is some-

times performed of a sudden; but if the labour was begun before the patient was seized with the emotion, it commonly went off, nor did the pains return for a long time. However, if these frights, &c. were not attended with violent floodings, convulsions, or fevers, the doctor found his patients generally recover, though sometimes the children were born dead. Yet even when those bad symptoms have accompanied the case, he says he has known both mother and child happily preserved.

From Floodings.

CASE I.—“ I was called to a woman near her full time, who was seized with flooding and labour, in consequence of being frightened by a fire which happened in the house, as well as from the fatigue incurred by removing the furniture. When I arrived, the fire was extinguished, and I found her lying upon hay in a barn, losing blood very fast. The mouth of the womb being pretty largely opened, I immediately broke the membranes, which, with the waters, were pushed down in every pain, and the hæmorrhage soon stopped: the patient was very cold, from the severity of the winter season, and the thinness of her covering. While I practised in the country, I always carried in my pocket some spirit of harts-horn, tincture of castor, and liquid laudanum, in separate bottles. Of these, with the assistance of some brandy and water, I composed a cordial and anodyne mixture, of which she took frequently two or three spoonfuls, and being accommodated with more clothes from the neighbourhood, she recovered her natural heat, and at last enjoyed a plentiful sweat and refreshing repose. The pains were slowly augmented with long intervals; as her pulse and strength returned the labour advanced, and although it was tedious, she was at last delivered. Yet her sleep was afterwards interrupted by frightful dreams of fire; and she often awoke in a delirium; so that twenty days elapsed before she was out of danger. She had suckled her former children, but had no milk after this delivery, and but a very small discharge of the lochia; these evacuations being impeded by the disturbance of her thoughts. Her greatest danger, however, seeming to proceed from weakness occasioned by the loss of so much blood, I thought the principal object of regard was the circulation, which was kept up by cordials and restoratives; and as she was every now and then subject to shiverings, and laboured under a low weak pulse, I prescribed repeated doses of the bark, and the moderate use of French claret, from which she found great benefit.

“ When labour is brought on, and a flooding occasioned by such alarms, so that the patient is exhausted by the hæmorrhage, this is either diminished or entirely carried off by breaking the membranes; and of late I have frequently succeeded in floodings that happened

before labour, by gently dilating the mouth of the womb with my finger, so as to bring on the labour pains, as in the following case:

CASE II.—“ I was called, by a midwife, to a woman seized with flooding in the middle of the ninth month, though no visible cause could be assigned for this hæmorrhage; and she had bore children before with very easy labours. As the discharge was not so great as to require immediate assistance, and her pulse was rather strong than otherwise, I ordered her to be bled to the quantity of eight ounces, and to be kept quiet in bed. Being costive, she received a clyster, took frequently two spoonfuls of a mixture composed of six ounces of the tincture of roses, and about twenty drops of liquid laudanum. The flooding abated, and she rested tolerably well that night; but when she rose to have her bed made, some large clots were discharged with a little pain, and the flooding returned, though it was soon restrained when she lay down again. In this condition, she continued for several days, during which, upon the least motion, some clots or coagula were forced off from the vagina, and followed by a fresh discharge, which, notwithstanding all our efforts to encourage her and support her strength, gradually weakened her constitution. It returning one evening with greater violence, I was called in a hurry, when I found her low and dispirited, and her friends in great anxiety and consternation. I had previously informed the midwife and relations, of the imminent danger that threatened the patient, if the flooding should not abate, or labour come on, and desired that some other gentleman of the profession might be consulted for their and my satisfaction; however this proposal they declined. Thus left to my own discretion, and feeling the os uteri very soft, though very little open, I gently introduced the tip of my finger, in order to dilate it, and desired the patient to assist my efforts by straining downwards. This method being gradually repeated every now and then, the parts were opened to the breadth of half a crown, and I produced some slight pains that returned of themselves. Notwithstanding several attempts, I could not break the membranes, until, gradually stretching the os externum during every pain, so as to introduce my hand into the vagina, I tried to advance my finger farther up; but not succeeding, I insinuated the female catheter, which breaking through the chorion and amnios, the waters were discharged in great quantity, the flooding immediately abated, and the child's head was pressed down upon the mouth of the womb. She now lay easy for a long time, without the return of a pain, during which interval, she was nourished and supported by frequently receiving a little broth. But being afraid that there might be an internal flooding dammed up by the child's head, I desired her to force down, while I raised the head with my finger, and accordingly several coagula were discharged from the uterus: I then thought it

advisable to bring on and encourage the pains, by stretching as before; and to my wish the parts were more and more dilated the pains grew stronger, and at last the patient was safely delivered. During labour I frequently felt her pulse, which instead of sinking, rather grew stronger."

CASE III.—"I was called to a woman, by a midwife, who told me that the patient had been seized with a violent flooding, but labour coming on, the membranes had broke, and the hæmorrhage was abated; but she had sent for me, because she found the navel-string in the vagina, and the woman was very weak, and had few or no pains.

"Indeed she was so low, that I could scarcely feel her pulse; her lips were pale, and her extremities cold. I found the funia in the vagina, but could feel no pulsation: the child's head presented, but was kept forwards to the os pubis, by the lower part of the placenta, which lay along the sacrum; however, the flooding was entirely stopped.

"I immediately directed her to take some of the solution of portable soup; and hot bricks, wrapped in flannel, being applied to her feet and hands, in about an hour her pulse grew stronger, her extremities recovered their natural warmth, and the pains returned. Finding the head was hindered from advancing by the placenta, I brought down this last, and the patient was gradually delivered of a small dead child; but she continued so weak, that for many weeks after her delivery she was scarce able to walk about the room."

CASE IV.—"I was called by the friends of a gentlewoman, who had been seized with a flooding the preceding night. The midwife told me, that the mouth of the womb was open to the breadth of a crown-piece; that the placenta presented; that the pains were very slight and at long intervals; and that the flooding was then more violent than when she was called. I myself felt the pulse was not so weak as one would have imagined, considering the quantity of blood she had lost.

"In this patient, who had formerly bore children, the discharge began to appear in the beginning of the eighth month, returning every now and then, when she ventured to go abroad; but by the advice and assistance of another gentleman, who was now obliged to attend another patient, it had been kept within bounds till this period, which was the beginning of the ninth month.

"As she would not permit me to examine, I privately advised the midwife to introduce her hand by degrees into the vagina, and feel all around for the edge of the placenta, at which part she might tear the membranes; she accordingly felt them at the left side, and a large quantity of the waters being discharged, the child's head advanced, pressing the under part of

the placenta to the right side. Then the pains increased, the head gradually dilated the os uteri, and being small, descended lower and lower, so that in a few pains the patient was delivered. The flooding abated when the waters were discharged, and was entirely stopped as soon as the head plugged up the os internum. From time to time I felt her pulse, which continued in much the same state, or rather became stronger; from which circumstance I concluded there was very little, if any, internal hæmorrhage; and her strength was kept up by her taking frequently a teacupful of broth, or wine and water."

CASE V.—"I was called by a midwife to a gentlewoman, whom she had formerly delivered of several children. This patient was taken with a small discharge of blood in the beginning of the ninth month, when I prescribed venæsection and a clyster; after the operation of which she received a paregoric draught. But the discharge continuing for several days, though in a small degree, I examined and found the mouth of the womb very soft, placed so high, and so far backwards, that I could not perceive the placenta presenting, though I felt through the vagina and uterus that the child's head rested against the os pubis. As the discharge did not weaken the patient, nothing was done, but I laid an injunction upon her, to refrain from going abroad. In about eight or nine days from this period, she was attacked with labour pains, and the flooding increasing, I received another call, when I was informed by the midwife that the mouth of the womb was largely open, that the waters had been discharged immediately before my arrival, that the placenta had come low down, but she could feel no part of the child. A strong pain immediately succeeding, I examined and found the placenta pushing through the os externum, and the delivery of this was immediately followed by that of the child, which was alive, although the placenta came first."

CASE VI.—"I was called to a patient about the end of the eighth month of her second pregnancy. The midwife told me the waters had been discharged two hours before my arrival, and the flooding stopped; that feeling something like a fleshy substance come down, she had tried to pull it away, on the supposition that it was a false conception, and that these attempts were followed by a large quantity of blood. This substance, upon examination, I found to be the placenta low down at the os externum, and sliding my finger betwixt it and the os pubis I felt the child's head. During the next pain she was delivered of the placenta, which was much lacerated, and a dead child. I have been concerned in many cases, where the flooding, when inconsiderable, was easily stopped, and the woman proceeded to the full time."

CASE VIII.—"Some time ago," says Mr. W. who communi-

cates these particulars, " I was sent for to a woman after the midwife had made use of all her art to no effect: upon enquiry, I found she had not gone her full time, the membranes were broke, and there had been, and still was, a profuse flooding. On touching, I could find no os tincæ. I then introduced my hand, with some difficulty, through the os externum, but could not readily meet with the os tincæ, being opposed by a soft fleshy substance, which I took for the placenta, and which proved to be so, as I afterwards found it. The child lying so high, and being hindered by the placenta, I could not get my hand beyond the os internum, to feel the child, which put me to a stand. However, having taken out my hand, I kept my countenance as well as I could, and advised the woman to be of good cheer. Now from the great effusion of blood, together with the foregoing circumstances, I thought it absolutely necessary to attempt her delivery, by opening the contracted parts, and turning the child; but I had no sooner sat down before her, than, providentially, she had a strong pain or two, and to my great surprise, the child was brought into the world, the placenta coming first, enclosed within its membranes. This plainly convinced me of the error of some who have asserted, that the placenta always adheres to the fundus uteri, seeing, in this case, it was the reverse. With regard to this case, the information I should be glad to receive is this: suppose the child had not been born as it was, whether I should have endeavoured to pass by the placenta, or extracted it before the child? and suppose part of the os tincæ is covered with part of the placenta, how to act?"

Dr. Smellie gives the following answer to these queries of his correspondent. He says, " I had a case of pretty near the same kind; the placenta adhered to the lower part of the uterus, and as the os uteri began to stretch, that part separated from the placenta, and then a small flooding began. When I was called, the patient had some labour pains, and on examining, I found the os internum open about the breadth of half a crown, and the placenta pressed a little down into it; as the discharge was not great, and the woman strong, I delayed to deliver until the os internum should be more open. Some hours after this, I was again called, the flooding was pretty violent, I found the os internum fully opened, and the placenta fully presenting; I laid the woman on her back, with her thighs raised, then introduced my hand into the vagina, passed up by the placenta into the uterus, broke the membranes, and delivered the child by the feet, by which means I prevented the placenta from coming down first. The child was alive, because part of the placenta adhered to the lower side of the uterus. I have had cases where the placenta has come down into the vagina before the

child's head, and was obliged to deliver it first ; but in such cases the child is commonly dead. It appears, in your case, that the os internum had been fully open, that the placenta filled all the upper part of the pelvis, and that the child being small, and the placenta detached, they all slipped along with ease, and were so suddenly delivered."

CASE VIII.—About five in the afternoon, Dr. Smellie was called to a woman in the latter end of the eighth month, who, the preceding night, had been taken with a large hæmorrhage of the uterus, and had, every now and then, some slight pains. Feeling the os uteri a little open, and the placenta presenting, he advised the accoucheur to dilate gently, every pain, and as soon as he could reach the edge of the placenta, to break the membranes. This he effected in a few pains : the waters were no sooner discharged than the flooding ceased ; and the pains growing stronger, pushed down the child's head, which gradually dilated the os uteri. But as it passed, the detached part of the placenta was forced down with it, and actually torn from the rest fifteen or twenty minutes before the child was delivered. They now expected the child would be lost, from this laceration, but contrary to all expectation it was alive, and did well ; the mother also recovered, though she had lost a great deal of blood, and had fainting fits before the doctor was called.

CASE IX.—A correspondent of the doctor was called to a woman who had gone her full time, and had for three or four days been troubled with a flooding which then increased.

"I immediately," says he, "took ten ounces of blood from her arm, and prescribed an opiate, that laid her quiet about three hours, during which the flooding abated. But when she awoke and began to stir, it returned, though not to so violent a degree.

"In the afternoon, I was allowed to examine, and found the os internum very thin, dilated to the breadth of a sixpence : but, as the flooding seemed to increase towards night, I ordered cloths dipped in cold oxycrate to be laid over the abdomen ; this application being twice repeated, the flooding entirely ceased, labour pains came on, in less than an hour she was delivered of a living female child, and both did well."

From Diarrhœa.

CASE I.—"Bilious colics, attended with vomiting and looseness, being at this time epidemical," says Dr. Smellie, "I was called to several women labouring under these complaints, at different times of pregnancy, and they were generally removed by washing the stomach and intestines with warm water, and afterwards prescribing opiates. One case, however, was more obstinate. I was called to a woman who had been exhausted and weakened by evacuations, for the space of twelve hours before

my arrival. I was told by the midwife that she was in labour of her first child, though she wanted about three weeks of the full time; but I was not allowed to examine, a circumstance at that time of little consequence, because, whether she was or was not in labour, the first intention was to carry off the vomiting and looseness, and recruit her lost strength and spirits, with all possible expedition. I immediately ordered her to swallow large draughts of mutton broth, which I found ready made, mixed with warm water, and these being thrown up at several times with little straining, she took thirty drops of liquid laudanum in a glass of brandy and water; but this being immediately rejected by her stomach, I gave her half the quantity of the laudanum in a little broth, and applied to her stomach a piece of brown paper moistened also with the laudanum; she now began to be gradually relieved of the pain, vomiting, and looseness, so that I was permitted to examine, and found the mouth of the womb thick and soft, opened to the breadth of a crown-piece; I likewise felt the membranes, waters, and child's head. The complaints beginning to return, I repeated the last dose, and in about half an hour after she had taken it, she fell into a sound sleep, which lasted several hours, and awoke very much refreshed, her complaints being entirely removed. All that day she felt no labour pains, and as she was very weak, I directed her to take frequently a small draught of pretty strong chicken broth, by which she was gradually recruited. She slept well that night, and in the morning was taken in labour, which proved tedious and lingering; though she was at last delivered of a large child which was dead, and in about six weeks she was perfectly recovered."

CASE II.—"I was called to a gentlewoman attacked by a violent purging, in consequence of having caught cold by sitting in an open chaise in rainy weather, when she was eight months gone in her second pregnancy. She had been exhausted by the evacuation the preceding day and night, during which she enjoyed no repose, and in the morning when I was called, I found her pulse weak and slow, and her extremities cold; and she told me, that in straining upon the stool, she had something like labour pains. I immediately prescribed the following:

(No. 4.) ℞ Theriac. venet. ℥ij.

Sumend. cum haustu sequenti.

(No. 5.) ℞ Aq. cinanom. ℥i℞.

Sp. nuc. moschat. ℥℞.

Tinct. opii gutt. v.

Syr. papav. alb. ℥ij. misce.

She was directed to drink plentifully of white-wine whey, and warm bricks to be wrapped in flannel, and applied to her legs and arms, in order to restore the natural heat, to promote a sweat, and encourage rest. "In the mean time," says the doctor,

"I examined and found the os uteri largely open, and the head presenting; and by feeling the hairy scalp, perceived the membranes were broke. In consequence of what I had prescribed, her extremities became warmer, her pulse rose, she fell into a breathing sweat, and slept three hours; but being waked by a pain and fresh straining, I ordered her to take half the quantity of the former prescription, by which she was again relieved, fell asleep, and when she waked in the evening, was quite free from the pain, griping, and straining, though still very weak and feeble. To obviate this complaint, I directed her to take every now and then some red wine burnt, with nutmeg and toast, and in the intervals, chicken broth. She continued easy the night following: when I called next day, she told me she had some slight pains, and I found the child's head lower in the pelvis. The pains increased, and in two hours after I arrived the child was delivered."

The doctor says, he has often known, in such cases, premature labour pains vanish, and the woman proceed to her full time.

From Convulsions.

CASE I.—"I was called to a woman by a midwife, who told me that the labour had proceeded very well; that the membranes had not broke until the mouth of the womb was largely opened; but that the head was no sooner forced into the upper part of the pelvis, than the patient was thrown into violent convulsions, which went off and returned with every pain. She was a strong young woman, of a florid complexion. This was her first child: her pulse being full, hard, and quick, ten ounces of blood were immediately taken from her arm: the convulsions abated every pain until they went off entirely, and in about an hour after they left her she was safely delivered."

CASE II.—"A woman in her third pregnancy, near her full time, being taken with a giddiness which was immediately followed by strong convulsions, I was called by the midwife, and examining in time of a convulsion, found the mouth of the womb open, and the convulsion forcing down the membranes and waters, in the same manner as they are usually pressed down by the labour pains. She was insensible, and these fits returned every six or eight minutes. Her pulse being very quick and full, I ordered her to be bled to the quantity of ten ounces, and a blister to be applied to her back. In consequence of these remedies, the convulsions abated and soon went off, but she was still insensible, and incapable of swallowing any kind of liquid. The friends being averse to my delivering her, I desired that in case the convulsions should return, I might be immediately called in order to deliver her, otherwise she would certainly be lost. My pro-

gnostic was literally verified; for in about an hour after I went away they returned with such violence, that she expired before I could reach the house, but the child was delivered during one of the fits.

"In the course of this year, I attended several patients who were attacked in this manner, near their full time; some of whom were relieved by blood-*ing* and blistering, and went on to the usual period: while others with whom this method did not succeed, were, with the children, saved by immediate delivery. Other practitioners had cases of this kind, during the same time, so that they seem to have proceeded from the constitution of the weather."

CASE III.—Mr. Mudge, of Plymouth, blooded a woman in the ninth month of pregnancy, who complained of a violent head-ach. He was again called in the evening, when she was seized with convulsions, for which he prescribed a clyster, blisters, a nervous mixture, and drops. At nine the fits became more violent and continued longer; and concluding that immediate delivery was absolutely necessary to save her life, he examined by the touch; then putting the patient in a proper position, he introduced his hand into the vagina, and tried to dilate the os uteri, which was very rigid, scarcely so open as to admit a quill, and at first very difficult to be distinguished.

After several unsuccessful trials with his finger, he was obliged to desist, in hope that it might be better disposed to dilate by next morning, before which time, however, he was twice called in the night, found her in continual convulsions, and no alteration in the parts. About noon next day, he visited and found her convulsed without intermission, though the force of the fits had not dilated the os uteri in the least, neither could her mouth be opened, so as to receive any medicine. At seven in the evening he was called in a great hurry, when the midwife told him, that now the child's head was in the passage. He could scarce believe this information, which, however, he found literally true, and sent for his forceps to assist in the delivery; but just as he was about to apply them, the head was forced out by the convulsions; he then delivered the body, and afterwards extracted the placenta, and the convulsions immediately abated.

CASE IV.—This is a recent case of puerperal convulsions, which fell under the care of Mr. Christie, surgeon to the 27th regiment of foot, and is published in the Medical and Physical Journal. It is related in the following words:

"M. Y. aged about 36, stout, well made, corpulent, of a ruddy, healthful complexion, is the mother of five children. All her labours, except the one which is the subject of the following description, were perfectly regular. The fourth child she had about three years previous to the last; during which interval

she had not any sign of miscarriage, although living constantly in the married state.

" In the beginning of last June, having for some time before felt herself impregnated, she wished, as was her custom, to lose some blood, and ten or twelve ounces were taken from her arm. During the period of utero-gestation, she enjoyed good health, although exposed to considerable fatigue, wet and cold, during marches both in England and Holland. About the end of last November, she was attacked with the symptoms of a slight cold, accompanied with a sense of weight and oppression about the præcordia. On the 1st or 2d of December, she also complained of a heaviness and pain of her eyes, with an intolerable giddiness.

" She then told her husband, ' she was never in this way before ;' and thinking that her complaints were connected with her labour, which she expected every day, she reported herself to the medical person on duty at the regimental hospital. She was advised to be bled ; but not assenting readily, and this not being insisted upon, a dose of salts was given to her, which, by the bye, she never took. Between the 2d and 4th of December, she shewed more than common signs of anxiety, repeating she was never in this way before: she complained, particularly, of a dizziness and defect of vision, and thought particles were floating before her eyes. On the morning of the 4th, her former medical attendant was called to see her, who took some blood from her arm, and I believe ordered her feet to be bathed in warm water. Her husband now began to think her conduct was becoming extremely silly and inconsistent: in the night of the 4th he was convinced of it; for then, without assigning any reason, she suddenly started up and laid herself down, with her head towards the foot of the bed. Surprised at such conduct, he got a light, and observed her to stare wildly, talking at the same time incoherently, and sometimes moaning. About this time a tremor extended all over her body, and soon after she became permanently senseless. Early in the morning on the 5th of December she had a general convulsive fit; another returned in little more than an hour with increased violence; and with an interval nearly of this period, the fits recurred, more or less severe, during the forenoon of the 5th. About two in the afternoon I was asked to see her: I found the poor woman lying perfectly comatose, insensible to the stimuli of light, sound, or drink; her breathing slow and laborious, pulse small and interrupted. I was informed, that the woman who acts as midwife in the regiment, had been desired to give her a clyster, and, I believe, to apply a blister somewhere; but so little suspicion had there been, even at this period, of the symptoms being connected with labour, that there was not even an attendant ordered, nor was any examina-

tion suggested or attempted. Should this statement be suspected, for a moment, to arise from any other motive than that of humanity, let those concerned take a posture of defence; let the advance be upright; honestly shall I combat; impartiality, truth, and the world being umpires.

"On examination, I found the os tincæ dilated, and abundant relaxation of the contiguous parts; the head of the child could be felt. I had been but a few minutes in the room, when the attendants told me, from the writhing of her body and signs of uneasiness, that she would soon have another fit; soon after, a fit of general convulsion, with distorted and blackened countenance, foaming of the mouth, lasting I suppose for more than a minute, supervened; the same obstinate stupor continuing after the fit was over. I ordered the nurse merely to watch the advancing labour, while I took away twelve or fourteen ounces of blood from her arm; from this I could perceive no other apparent change than a lessening of the redness in the countenance. The fits, for some time previous, had come on every half hour, and sometimes even in less time; it was evident they were connected with the action of the uterus. The delivery of a stout, full-grown, healthy-looking child, was accomplished with astonishing rapidity, and without artificial aid, within an hour of my first seeing her; a second pain expelled the placenta, which was large and natural, and there was no alarming hæmorrhage. A most profuse sweat followed the fit in which the child was born; and now there appeared to be some remission in the general tumult of the system: she remained quiet, but perfectly comatose. From the occasional writhing of her body, and pressing downwards of her hands, I began to suspect something was wrong, or something more was coming. An hour after delivery she had another fit, equal in severity to any of the former; I repeated the blood-letting, and now took the blood from the temporal artery, which flowed abundantly. On the second examination, I found the os tincæ very much dilated, and I felt somewhat that made me believe there was either a polypous tumor, a false conception, or partial inversion of the uterus; it felt like the head of a child surrounded with some gelatinous matter or clotted blood. The swelling and motion of the abdomen too, were not of that equable kind which follows a common labour. I was extremely anxious, and requested the attendance of another gentleman, and Mr. Mackeson, surgeon, in Deal, came in about three hours after the delivery; when she had another fit of convulsion, though not equal in severity to any of the former ones. The tumor we felt still pressing upon the cervix uteri, but it had become less distinct, and the roundness of the abdomen assumed a more regular and diminished appearance; he satisfied me there was no second child. A clyster had been given shortly before

this, and immediately after the last fit, which appeared to excite several pains; but those were either of the nature of after-pains, or in consequence, probably, of some convulsive action of the uterus itself; which I think, in this case, had suffered a partial inversion, forming the tumor mentioned.

"As her pulse now rose both in frequency and fulness, as her countenance still appeared much flushed, and as she still continued to lie in an apoplectic state, we agreed to take away more blood, should the fits return. About ten o'clock in the evening, she lay in the same profound stupor, but without any return of the convulsion. Saw her on the morning of the 6th about nine o'clock; she had one fit in the course of the night, and it was less in violence than any of the preceding. Stupor remains—breathing hurried—pulse about 110—skin hot—face flushed. Ten ounces more of blood were taken from the arm; she retracted her arm as in pain, on the introduction of the lancet. At 8, P. M. oppression in breathing lessened surprisingly, as well as the frequency of her pulse, and redness of her countenance—stupor continues—her head is shaved, and a blister applied.

"7th December, mid day. Blister has been dressed—has had no return of the fit—stupor seems to wear off—she looks up occasionally on being spoke to, but immediately afterwards shuts her eyes, as if desirous of remaining undisturbed—pulse upwards of an hundred, and feeble—skin moist and less hot than yesterday. The lochia, of a natural appearance, have been in less than ordinary quantity; is now ordered to take a tonic mixture, in which there is aromatic confection and vitriolic æther, along with a gill of mulled wine, three times a-day.

"Nine o'clock in the evening. Skin still agreeably moist, with little heat—pulse still upwards of an hundred in the minute. On rousing her, she immediately seems desirous, as before, of remaining undisturbed—is observed to sigh frequently and deeply, as if from a sudden surprise—she also is seen often to stretch forth, and draw up her limbs, as if she felt ease from this sort of motion. Her pulse seems to have a curious peculiarity in it: for thirty or forty strokes, sometimes for half a minute, it beats small and weak; and afterwards, for a similar time, it rises fuller and stronger, resembling as it were the ebbing and flowing of the waves of the ocean. In other cases, where the powers of the constitution had been previously much exhausted and deranged, and where they appeared to be gradually recruiting, I think I have more than once observed this waving sort of feel in the pulse: sometimes, indeed, unequal pressure of the finger may give one this sensation; but in this case, having felt both arms with attention, it was certainly distinct, and that without any evident intermission.

"Morning of the 8th of December. Stupor continues wear-

ing off—pulse less frequent, still feeble—skin moist—bowels open ; on desiring her to shew her tongue, she attempted it, by opening her mouth. Her countenance now shews intelligence, combined with anxiety ; when counting the pulsations at her wrist, she was observed to look stedfastly, first at the watch, then at me, and then at the by-standers, communicating a sensation, peculiarly agreeable, and easier to be felt than described. The people around her now observe, that she seems anxious to say something, but has not yet uttered a word more than the monosyllables yes and no. Injunctions given to keep her very quiet ; and especially when she asks any question respecting her situation, to inform her of it in as cautious, gradual a manner as possible, to guard the mind against any sudden exertion or shock. Ordered to continue the tonic remedies.

“ Morning of the 9th of December. Pulse still feeble and frequent, skin moist, heat natural, tongue clean—now understands perfectly what is said to her, to which she gives distinct answers, but seemingly with reluctance : can now swallow, drink readily, and can even take a little light food. From this period she gradually recovered both the functions of the mind and the strength of the body. The secretion of the milk was for some days nearly gone. She complains of pains through her body, particularly in her limbs, and compares them to those pains felt after any long-continued violent exercise.

“ 13th of December. Found her continuing in a state of convalescence, but very weak, and complaining still of the pains in her limbs ; has yet no recollection of any thing that happened during her illness.

“ 22d of December. She continues gaining strength ; is not yet entirely free from the pains of the limbs : she came to recollect being reported to the medical person who first saw her ; but beyond this period knows nothing of what happened in her illness. The secretion of the milk returned abundantly with her strength. She is now, at the time I am writing, in perfect health and spirits, and very thankful ; for she rose again, although three days of her life have been buried in the darkness of death.”

Mr. Christie adds the following reflections on this case :

“ I hope,” says he, “ the history of the foregoing case will not be without its use ; it is indeed a matter of regret that we know nothing at all of the state of the os internum at the time of the approach of the fits : and the propriety of assisting promiscuously, by direct means, the wished-for dilatation, is a subject well known to have the most able advocates ; while others, of no less respectability, have doubted the propriety of the practice here spoken of *. It is quite foreign to my intentions, and indeed al-

* Among the former may be reckoned Dr. John Clarke, and with the latter Dr. Denman.

together beyond my present sphere, to attempt any decision on the question, What cases of labour, accompanied with convulsion, require direct artificial assistance; especially after the ample and satisfactory directions given in books on Midwifery: all I now aim at is, to inculcate the propriety of the evacuating plan, and particularly blood-letting, as I think I have, in more cases than one, prevented puerperal convulsion supervening, by the timely, free use of the lancet, where the approach of this dreadful symptom was not indistinctly marked, and in habits too where the propriety of blood-letting might have been much questioned. Most writers recommend an early attention to bleeding and purging, as the means most likely to prevent puerperal convulsion. The unfrequency of the symptom has probably prevented their recommendation from being sufficiently attended to, and I have reason to suspect it has been too often entirely overlooked. In the case before us, I was so much convinced of the utility of blood-letting, even after the fits had commenced, and after the delivery was accomplished, that I have no hesitation in believing, the fits would either have been altogether prevented, or at least highly modified, had the lancet been largely used when the woman first reported herself; as I consider that was the period the constitution received the warning of the impending danger: that the symptoms of oppression, the difficulty of breathing, the pain of the eyes and head, were the true fore-runners of the convulsions; that this was the most proper period for bleeding, and which should therefore put us on our guard in similar cases. With regard to the appearance of the blood in the present instance, if that is to be considered as an infallible guide, it was even in our favour, there being on the blood a slight buffy coat, except the blood drawn from the artery, which shewed a florid smooth mass, more homogeneous in its appearance than the venous blood."

Labours rendered tedious by Inflammation and Fever.

CASE I. In the month of March, which usually, in the country where Dr. Smellie then resided, was remarkable for the pleuretic fever that was epidemical, and often proved mortal if the patient was not plentifully blooded at the first attack, he was called to a gentlewoman in the seventh month of her pregnancy, who had borne several children. She was suddenly seized with violent stitches in her right side, and a great difficulty in breathing, for which she immediately lost ten ounces of blood. From other patients, attacked with the same disease, he had taken twenty ounces, and by repeating this evacuation once or twice, had frequently carried off the inflammation and fever, while those who were blooded too sparingly or too late, sunk under the disease; but he would not venture to bleed this patient to such a quantity, on account of her condition. Nevertheless, as the symptoms were alleviated, though not removed by the first venæsection, he

followed Sydenham's method in prescribing plenty of diluents, and next morning repeated the bleeding to the same quantity. "Upon my first arrival," says he, "I had sent for an eminent physician who lived at some distance, and he approved of what I had done, advising, that as it would be hazardous to take a large quantity at once from a person in her condition, she might be blooded the oftener; and this method being followed, in two or three days relieved all her complaints, having prevented a sup-puration, perhaps a mortification of the pleura. Though much exhausted by these evacuations, she gradually recovered strength enough to proceed in her pregnancy; and in a fortnight after her recovery, was safely, though prematurely, delivered of a weak child, which did not long survive the birth."

CASE II. A woman in the ninth month of her fourth pregnancy, was seized with a violent fever, in consequence of having caught cold. She complained of a racking head-ach, was between whiles delirious, and on the fifth day of the fever, fell into labour. Her pulse was quick, low, and intermitting; she laboured under a subfultus tendinum, and was in a little time delivered of a very weak child that soon died: her delivery was attended with inconsiderable discharges; and she expired that same evening.

Dr. Smellie says, he attended in many cases, in different periods of pregnancy, in the beginning, increase, height, and declension of fevers, and the patient commonly recovered, if miscarriage or delivery happened at the beginning or declension, provided the discharges were not extraordinary; but when the fever was violent and at the height, the patient usually died: and the child was frequently dead when delivered in the decline of the fever.

Difficulty arising from Circumvolutions of the Funis Umbilicalis round the Neck of the Child.

CASE I.—Dr. Smellie was called to a gentlewoman in the eighth month of pregnancy, by a midwife, who told him the labour had been very tedious: the head had been advanced to the os externum for near two hours, but was drawn up again after every pain.

"The patient being averse to my examining," says the doctor, "I advised the midwife to introduce a finger or two into the rectum during a strong pain, when the head was low down, and pressing against the forehead at the root of the nose, keep the head in that position for a few pains. By this method the patient was soon delivered of a dead child, round whose neck the funis was four times circumvolutated."

CASE II. The same practitioner attended a gentlewoman in labour of her first child, whose os uteri dilated with the membranes and waters, in a slow and gradual manner, until it was fully opened, when the membranes protruding to the os externum, were broke; then the head came down to the middle of the

pelvis, and being pushed further in time of a strong pain, it was drawn back to the same place as the pain abated, and continued to advance and retreat in this manner for several hours; so that the patient was very much fatigued, and her friends began to be very uneasy.

"That I might examine more narrowly," says the doctor, "I began to dilate and open gently the os externum during every pain, until I could easily introduce my fingers all round the lower part of the child's head, so as to perceive that the delivery was not retarded by the largeness of the head, or the smallness of the pelvis, neither could it be delayed by the contraction of the uterus before the shoulders, because the head began to be drawn upwards, immediately after the membranes broke; and the contraction seldom happens, until all the waters are discharged. From these circumstances, I concluded that the difficulty proceeded from the circumvolutions of the funis umbilicalis round the neck of the child. The left ear of the fœtus was to the left groin of the woman, and its right ear to her right side betwixt the sacrum and the ischium, the forehead being to the left.

"I resolved to assist in bringing the head lower, and keeping it so, with the help of the forceps, had it continued much longer in that situation; but as she had every now and then a strong pain, I first tried what might be effected by different positions, and directed her to bear the pains, standing, sitting, kneeling, lying on one side, or resting on the bed, in a posture between sitting and lying. This last was the most successful, and in three or four strong pains, the head, though still retracted, advanced lower and lower, and began to dilate the os externum. But observing that it made another stop, I introduced two fingers into the rectum, when it was pushed down by a strong pain, and pressing them against the lower part of the forehead, kept it down and prevented the head from returning, until the return of the next pain. I continued this method, in consequence of which the head advanced further and further, and assisted the delivery of it, by raising the forehead upwards with an half-round turn from the lower part of the os externum. The woman was soon delivered, and the funis was found three times round the neck, and once round the arms of the child."

This method Dr. Smellie frequently followed with success, when the forehead was come down to the os coccygis: but when it was advanced still lower, he withdrew his fingers from the rectum, in order to prevent a contusion of that part, as well as of the vagina, and pressed with his fingers on the external parts, and on each side of the coccyx. Care, however, was taken to avoid the eyes in this pressure, otherwise mischief would happen to them. He observes, however, that this assistance is not to be used, except when the head comes low down, without continuing to stretch

the os externum; for although it is retracted after every pain, yet, if by advancing a little in the time of pain, it dilates this part, such gradual dilatation is much more safe for the woman, than a sudden distension, by which the parts are in danger of being inflamed or lacerated.

CASES III. and IV.—In this manner Dr. Smellie assisted in two cases where delivery was retarded by the *shortness of the funis*. In one case the funis was not above two hands breadth long, though very thick.

Mauriceau, in p. 336, and Observ. 406, relates an instance of his having delivered a woman of her first child, whose navel-string was extremely short, and as thick as its arm. The child had been dead several days before delivery.

It may be proper to observe, that when labour is retarded by the shortness or circumvolution of the funis, the retraction or drawing back of the head does not begin to be perceived until it is low in the pelvis, whereas it is sooner observable, when owing to the contraction of the uterus before the shoulders.

The head is also low down, before it can be retarded by one of the shoulders resting above the os pubis or sacrum, instead of being towards the sides at the brim of the pelvis.

Impediments to Labour arising from Knots on the Funis.

CASE I.—“ My attendance,” says Dr. Smellie, “ was bespoke to a woman, who imagined herself in labour about the end of the eighth month. This, however, was no other than a colicky pain, proceeding from costiveness, of which she was relieved by a clyster.

“ In a fortnight after this visit, I was called, and found the membranes had broke; the waters were of a brownish colour and mortified smell: the labour was lingering, and the child, when delivered, of a livid hue: the scarf-skin was easily stript off, the abdomen tumefied, and the funis swelled and livid, about ten hand breadths long, with a tight-drawn knot on the middle.”

CASE II.—The doctor attended another patient in a lingering labour, and delivered her of a living child, though there was a loose knot on the funis, which was very long.

CASE III.—He also assisted in a case, where the funis being nine hand breadths long, had a loose knot on it, and was twisted round the neck of the child, which was dead; though he supposes its death did not proceed from the knot or circumvolution, which were very loose, but from the nature of the labour, which was very lingering, the head being squeezed to a great length, and the brain too long compressed in a narrow pelvis.

Tedious Labours arising from Contractions of the Uterus before the Shoulders, and these last resting above the Pubis or Sacrum.

CASE I.—Dr. Smellie discovered, by the following case, that labours are often rendered tedious and lingering by the lower part of the uterus contracting before the shoulders, when the membranes break, and the waters are too soon evacuated. This contraction not only keeps up the body of the child, but sometimes prevents the shoulders from turning from the upper part of the pubis to the side of the pelvis where it is widest. “I was called,” says he, “by a midwife to a woman thirty-five years of age, in labour of her first child, the membranes having been broke a long time. I found the head presented almost as low as the middle of the pelvis, and that the os internum was fully open, and the pains strong and frequent, yet the head did not advance, but receded a little after every pain; a circumstance which at first I imputed to the funis.

“Finding the woman very uneasy, and her friends importunate, I amused them with a palatable mixture, of which I directed the patient to take two spoonfuls every half hour, my intention being to gain time: for I felt the child’s ear at the upper part of the pubis, the head was small and very little engaged in the pelvis, and I could foresee nothing dangerous in the case. I accordingly took my leave, after having assured them she was in a fair way, and would in a little time be safely delivered by the midwife. In about two hours, I received another call, and was told the medicine had done her no service. I likewise understood from the midwife, that the child’s head was very little advanced, and that she had kept her in an easy position, according to my direction. When I examined, during a strong pain, I found the head lower down, but as the pain abated, it was drawn back to its former place: upon which, I turned her upon her side, in order to bring down the head with the forceps, but first resolved to try what could be done by dilating the parts. Accordingly, placing her breech to the bed-side, I gradually opened the os externum, during every pain, introduced my hand up the vagina, and with great difficulty raised the head above the brim of the pelvis. In pushing up my hand, on the posterior part between the os uteri and head, I felt the lower part of the womb strongly contracted round the child’s neck; then by continuing to push up further, I raised the child, and gradually stretched the contracted part; so that when I withdrew my hand, a strong pain immediately followed, and forced down the head to the lower part of the pelvis, and in a few subsequent pains the child was delivered.”

Dr. Smellie says, that although the child be not large, nor the pelvis small, labour is frequently retarded by such contractions,

when the membranes are broke too soon; so that practitioners should avoid breaking them, until the mouth of the womb is fully opened, that the head, by descending immediately into the pelvis, may plug it up and prevent the waters from being too soon discharged. Except, however, in cases of flooding, where the less difficulty or danger must yield to the greater, and the membranes be broke, in order to stop the hæmorrhage.

By those contractions, the child's head is seldom kept up so long as in the case described above, but is gradually pushed lower down; and the labour is more or less lingering, according to the degree of contraction, and the strength or weakness of the pains. In a word, there is seldom occasion to assist, until the pains fail, as we shall observe in the more laborious cases.

Lingering Cases from the large Size of the Child.

CASE I.—“ I was called,” says Dr. Smellie, “ to a woman, whose friends told me, she had been three days in labour, and that the midwife, who had lost her opportunity, was keeping her in hand. She, however, in her own vindication gave me to understand that she had delivered the patient twice before; that the first labour was lingering, and the child, which was small, came before the time; that the second was also tedious, and the child, which was large, still-born, because they had sent for her when it was too late to save it by making more room: that, in order to obviate the like misfortune upon this occasion, she had been called in good time, and considerably dilated the parts; but when the waters were discharged, the pains had not been strong enough to deliver the child. She likewise affirmed, that when she was called, there was no opening of the os internum, which did not begin till the preceding night; but that the woman laboured under a colic, attended with a looseness, which had been stopt by something prescribed by the apothecary, upon which the pains grew stronger; and that she, the midwife, had lost no time, but tried all the different positions, and dilated the parts during every pain. Indeed, the looseness had exhausted the patient, and she was moreover fatigued by the unskilful management of the midwife, who was extremely ignorant, had never received the least instruction, and seemed incapable of profiting by her mistakes in practice.

“ When I first examined, I found the mouth of the womb pretty largely opened, but thick and swelled; the external parts were likewise tumefied and inflamed. I afterwards, during another pain, felt the head presenting, though very high up. Her pulse being low and quick, I directed the attendants to put her to bed, and keep her as quiet as possible. As she was troubled with a great drought, I desired her to drink barley-water, and take now and then a little weak broth, with toasted bread; and lastly, in order to amuse herself and friends, I prescribed a draught

of syrup and simple waters to be repeated every two hours. Then exhorting her to disregard the trifling pains she had, I assured her they would grow stronger, and assist the delivery with better effect, after she should have enjoyed a refreshing sleep. Having given these directions, I took my leave about eight in the morning, and returning in the evening, was informed that she had slept very sound for five or six hours, sweated plentifully, and undergone every now and then a smart pain.

"Finding the parts much softer, the heat abated, and the pains gradually pushing down the head of the child into the pelvis, I encouraged the patient, telling her she was now in a good way, though, in consequence of her weakness, her delivery would require some time, and therefore she ought to exert her patience. I likewise privately directed the midwife to let her rest in bed, and sleep as much as possible, without fatiguing her by a repetition of her former conduct. But notwithstanding this express admonition, when I was called early next morning, I understood she had acted diametrically opposite to my advice, by raising her out of bed, and harassing her in the manner already described, so that she was quite sunk and dispirited, and the external parts were inflamed and swelled as before. She was immediately replaced in bed, and a poultice of bread and milk being applied to the parts, I waited to see the event. She slept and sweated a good deal, and when waked with a pain, took some broth, warm wine and water, and caudle alternately, at different times, so as to be much recruited and refreshed; the inflammation also abated, upon which the poultice was removed, and the part cleaned; and the pains growing stronger, she was delivered about noon, of a dead child, whose head was squeezed to a great length.

"I afterwards delivered this woman three times, and the children were all uncommonly large, but by giving her time, and keeping up her strength, she was safely brought to bed, and they were all alive."

CASE II.—"I was, in the evening, called to a patient by the midwife, who told me the woman had been long in labour of her first child, that the os uteri had gradually and slowly opened, that the waters had been discharged a great many hours, and that the child's head did not advance.

"Upon examination, I found the head was come down to the middle of the pelvis; and the woman being strong, with a quick, full, hard pulse, was bled to the quantity of ten ounces. She was kept quiet in bed, and slept betwixt the pains, every second or third of which was pretty strong. I desired the midwife to indulge her with all possible rest, and send to me if she should grow weaker, and could not be delivered by the pains.

"Accordingly I was called next morning, when I found the child's head advanced to the lower part of the pelvis; but the pa-

tient being exhausted, and her pains growing weaker, I resolved to deliver by turning the child, or if that should not be practicable, to assist with the fillet or crotchet. I then did not know the method of delivering with the forceps.

"After having gradually opened the os externum with my fingers, I tried to raise the head, and introduce my hand into the uterus, so as to reach the feet: but the contraction was so great, that I could not advance further than the upper part of the vagina: upon which I determined to use the fillet; when a strong pain coming on, as I withdrew my hand, the head descended lower, and in two more pains the woman was delivered of a child, whose head was squeezed to a great length."

Dr. Smellie says he several times succeeded in such cases.

CASE III.—"In the same year I was called to another woman, who had been long in labour of her third child. When I first examined, I thought I felt the breech of the child, but afterwards found it was a large tumor on the child's head, which was pretty low in the pelvis. The patient had been much fatigued by the imprudent management of the midwife, the pains had become weak, and her pulse was low. I directed her to be put to bed, to take something warm, and try to doze between the pains. By this method her exhausted spirits were recruited, her pains grew stronger, I assisted as in the preceding case, and she was delivered of a dead child, with a large head squeezed to a great length."

CASE IV.—"I was called to a patient, whom I had delivered twice before: in her first labour I used the crotchet, in the second I tried the fillet, but without success; upon which I brought the child by the feet, though I could not save it, because the head was very large.

"Having found by experience that several children were lost by using these expedients prematurely, and by turning the child when a large head presented in a narrow pelvis, I resolved to manage this case in a more cautious manner, and desired that I might be called in time.

"Accordingly, when I arrived, the midwife told me, that the patient had not been fatigued, and only once examined; the mouth of the womb was largely opened, and the gentlewoman being of a weakly constitution, I kept her chiefly in bed. The waters broke soon after my arrival; the labour was very tedious from the largeness of the head, which advanced very slowly in the pelvis; but by encouraging and keeping up her strength, she was at last safely delivered."

CASE V.—"In the course of the same year, I attended a woman who had been long in labour, and whose waters were discharged many hours before I arrived. I found the mouth of the womb largely opened, the child's head had advanced to the mid-

dle of the pelvis, the patient very much fatigued, and the midwife told me her pains had been strong, but were much abated.

"As I could not turn the child, I made a noose on a garter, which I, with great difficulty, fixed over the fore and hind head, and pulled gently during every pain; but, not succeeding, I increased the force until the noose slipped off. Then resolving to try what nature would do, I prescribed a gentle opiate, and she being kept quiet in bed, enjoyed between the pains some refreshing slumbers, by which her strength was gradually recruited, and the pains growing stronger, she was in about two hours safely delivered. The fillet had galled and inflamed the hairy scalp of the child, which, however, in consequence of proper applications, recovered in a few days."

CASE VI.—"I attended a gentlewoman in the city, in labour of her first child. She was young, strong, and healthy, had gone a month beyond the common time of reckoning, and the case was very tedious. For after the membranes had broke, and the child's head advanced a little in the pelvis, she underwent many severe pains for the space of four hours, before it descended to the lower part, where it continued two hours longer before she was delivered.

"I perceived that the greatest difficulty proceeded from the large size of the head; and she being strong, and the pains brisk, I thought nothing should be done, but to encourage and prevent her from being fatigued. However, before she was delivered, her spirits and pains began to flag, and her friends became very anxious and uneasy; indeed I myself was not without apprehension that both she and the child would be lost.

"Though the pains were most effectual while she continued in bed betwixt a sitting and lying posture, when they began to grow weak, I resolved, as the head was low down, to assist with the forceps: but before I used that expedient, I thought proper to alter the position, and try what would be the effect of her taking some pains standing, a posture which had succeeded in other cases. She was accordingly taken out of bed, and some loose clothes being put on, supported between two women. Her pains increased in consequence of this alteration, and after she had undergone several severe ones, I found the child's head began to move lower and lower, and protrude the parts in form of a large tumor. Then she was put to bed again, and with great difficulty I saved the perinæum from being torn. After the head was delivered, it required great force to bring along the shoulders: indeed this was the largest child I ever brought into the world alive.

"The head was squeezed to a great length, had a large tumour at the vertex, and if the mother's pelvis had not been very large, the child could not possibly have been saved."

CASE VII.—"I was called," says Dr. Smellie, "to a pa-

tient about the age of forty, in labour of her first child; though I was not permitted to examine, but obliged to wait in another apartment, in case of accidents. By the midwife's information from time to time, I understood the child advanced very slowly after the os uteri was largely opened, and the membranes had broke; and that the pains, though seldom, were pretty strong.

"In this manner labour proceeded for the space of twelve hours; at the expiration of which, the midwife told me that although she had at first found the child was alive, by moving its head, she was afraid it was now dead, for the pains had flagged for a long time, and a small part of the head had been for two hours without the external parts. However, the child was delivered soon after she gave me this account, and appeared to have been but a very little time dead: and, in all probability, when the head was so low and the pains abated, it might have been saved by the assistance of the forceps, which seldom or never fail when things are in that situation.

"I afterwards learned that the shyness of the patient proceeded from the artful insinuations of the midwife, who terrified her with dreadful accounts of the use of instruments."

The candour and good sense which distinguished the amiable and judicious practitioner, to whom we chiefly owe the valuable facts contained in the present chapter, were never more conspicuous than in the remarks attached to this part of the subject.

"During the first year of my practice," says he, "when I was called to lingering cases which were often occasioned by the imprudent methods used by unskilful midwives to hasten labour, such as directing the patient to walk about and bear down with all her strength at every trifling pain, until she was quite exhausted, and opening the parts prematurely so as to produce inflammation, and torture the woman unnecessarily; on such occasions, without knowing the steps that had been taken, I have been told that the patient had been in severe labour for many hours, and sometimes days, and that now I was called to prevent her from dying with the child in her womb. Thus solicited, if the head was at the upper part of the pelvis, I commonly turned the child, and brought it by the feet; and thus, if small, it was usually saved, provided it was not dead before my arrival: but, when the head was large, or the pelvis narrow and distorted, the force necessary to extract it was often the occasion of its death. On the other hand, when the head was so low in the pelvis, that I could not raise it into the uterus, in order to be turned, I was obliged to dilate the cranium with the scissars, and extract with my fingers, assisted by the blunt hook. This method, however, I never practised, except when the head was low down, and the patient so much exhausted that she could not be delivered by the pains; and not

even then, until after I had tried Mauriceau's fillet which always failed, and another introduced by my fingers in form of a noose, which sometimes, though very rarely, succeeded, when the child was small.

"I endeavoured (continues he) to reduce the art of midwifery to the principles of mechanism, ascertained the make, shape, and situation of the pelvis, together with the form and dimensions of the child's head, and explained the method of extracting from the rules of moving bodies, in different directions. Nevertheless, I had still some occasion to perceive that children were lost, and the mothers endangered, by turning, when the head was large and presented, or even by leaving the head to stick long at the lower part of the pelvis, when the pains were weak and the patient exhausted; for in this last case the child, when delivered, was commonly dead, in consequence of the brain's having been compressed; and the same long compression had produced an inflammation in the vagina, os internum, and sometimes in the uterus of the mother. To obviate these misfortunes, I was sometimes obliged to have recourse to the fillet or forceps, with which last I frequently succeeded, so as to save the child; though the use of them was sometimes attended with a laceration of the external parts of the woman, until I contrived an alteration in their form, and gave new directions for using them, by which this inconvenience is prevented.

"In a word, I diligently attended to the course and operations of nature, which occurred in my practice, regulating and improving myself by that infallible standard; nor did I reject the hints of other writers and practitioners, from whose suggestions, I own, I have derived much useful instruction."—After acknowledging the sources from which he derived many valuable hints, and among the rest avowing his obligations to Dr. Hunter "in reforming the wrong practice of delivering the placenta," Dr. Smellie says, "I have given this short detail of my own conduct, for the benefit of young practitioners, who will see, that, far from adhering to one original method, I took all opportunities of acquiring improvement, and cheerfully renounced those errors which I had imbibed in the beginning of life."

Difficulty arising from the Hydrocephalus.

CASE I.—Dr. Smellie attended a gentlewoman in labour of her fourth child, and felt the membranes pushed down, and the os internum and os externum largely opened. Before the membranes broke, the child's head continued a long time high up at the brim of the pelvis, and felt in such an uncommon manner, that he was for some time uncertain whether it was the head or breech. But the waters being discharged, it was pushed a little lower down; then he felt the hairy scalp, and perceived the head

was dropical, from the looseness of the bones, and the great distance between them."

After many severe pains, the scalp was protruded to the os externum, which the contained water distended to such a degree, that the head passed, and the child which was presently delivered, seemed to have been dead but a very little time.

CASE II.—The doctor was called to a woman in labour of her first child. The membranes and waters opened the os uteri in a very slow manner, and when they came down to the middle of the vagina, felt as if there had been one set of membranes within another, though the internal seemed to be much thicker than the external. But before the os uteri was fully opened, the real membranes broke, and then he discovered the other was the hairy scalp, pushed down by water contained in the skull. This the pains forced down lower and lower, so that the os internum being fully opened, it stretched the vagina and os externum in the same manner as they are commonly dilated by the membranes and waters of the secundines; and he felt the bones of the skull loose and riding over one another.

At length the head being delivered, he was obliged to exert a good deal of force, in bringing along the shoulders and body, because the belly was swelled. The funis was tumefied and livid; the child seemed to have been dead for the space of eight or ten days; and there was a large quantity of water contained in its head.

Lingering Cases from a small, narrow, or distorted Pelvis.

Although these labours may seem to be of the same class, and require the same management with those that proceed from a large head, there is an essential difference: for, though they are much the same with regard to the efforts of the woman, the operator in these has much less room, when he is obliged to assist with his hand, and the child's head is disfigured and compressed into large indentations, occasioned by the jetting in of the upper part of the sacrum and vertebræ of the loins.

CASE I.—Dr. Smellie was bespoke to attend a woman of a middling size, and to appearance well made, who had been three times before delivered of dead children. The first presented with the arm, and the midwife having kept her two days in hand, with promises of safe delivery, the friends called a gentleman of the profession, who with great difficulty extracted the child by the feet, and was so much fatigued with the operation, that he was obliged to keep his bed for several days. "In her next child," says the doctor, "I was employed, after she had been weakened and exhausted by another midwife, who with great self-sufficiency had undertaken to bring matters to an happy issue.

"Having waited a long time to no purpose, I tried the forceps;

and these failing, dilated the cranium according to the method described in laborious births. Then I found the difficulty proceeded from the large size of the head, and the jetting in of the upper part of the sacrum, which was not above three inches and a half from the os pubis. In her third labour I attended by myself; but the breech unluckily presenting, and the child being very large, I could not possibly save it, for I was fain to use the curved crotchet in delivering the head, to the great grief and mortification of the poor mother, who had suffered so much, and lost three children.

“ When I was called to her labour of her fourth child, the mouth of the womb was open to about the breadth of a shilling, and the child’s head rested on the upper part of the pubis, but was thrown a little more forward than usual, by the jetting in of the upper part of the sacrum, and the last vertebra of the loins. Labour being just begun, I encouraged the patient, by telling her that I had saved many children even where the pelvis was narrower than hers, and that I was now in great hope of succeeding, provided the child was not of an extraordinary size. As she had slept but little the preceding night, and her pulse was rather full, I ordered ten ounces of blood to be taken from her arm, and her intestines to be emptied by a clyster; and taking my leave in the morning, desired the nurse would not send for me until the membranes should be broke. She was accordingly kept quiet in bed, and enjoyed some refreshing sleep, and in the evening I received a message; then the membranes were broke, the mouth of the womb being largely opened, and the head beginning to be squeezed in at the upper part of the pelvis; but when the membranes gave way, the pains abated, as is commonly the case when the head is not small, or the pelvis large; for the pains she had hitherto undergone, proceeded from the membranes stretching the mouth of the womb; and now the head being kept up, did not continue the distension of these parts, but locked them up so as to detain a quantity of waters still in the uterus.

“ I went away again, desiring the nurse to send for me when the pains should return and grow stronger; and in about three hours I returned, in consequence of another call, when I understood a great many cloths had been wetted, and that the pains were become stronger and more frequent. I then felt the child’s head squeezed lower down, and but little water being discharged in time of a pain, I concluded that the whole quantity was almost expended, and that the uterus was contracted close to the body of the child.

“ As the patient had been chiefly in bed during the whole day, I directed her to take her pains in a sitting posture, and now and then to walk about without fatiguing herself. She therefore sat in an easy chair, leaning backwards, and in this manner took

her pains, until towards morning, being very much fatigued, she was again put into bed and laid on her back, her shoulders being raised with pillows so as that her posture was between sitting and lying. I desired her in time of pain to pull up her legs, while an assistant supported her feet, and directed her not to force down, except when the pain was strong. The head continued to advance very slowly, the bones of the cranium riding over one another, the vertex was squeezed down in a conical form to the lower part of the left ischium; the forehead being at the upper part of the right, or rather above the brim of the pelvis on that side; the fontanelle was still very high up, and I felt the ear at the os pubis. At every third or fourth pain, which was generally the strongest, the head advanced, and the occiput was gradually raised to the space below the pubis, the forehead turning backwards to the lower part of the sacrum and coccyx.

“ The head being now so low down, and disengaged from its confinement and pressure at the upper part of the pelvis, proceeded much more easily than before; however, as the child was large, and might be lost in being detained too long by the contraction of the uterus before the shoulders, I assisted a little, when the forehead was come down to the lower part of the coccyx, by placing my fingers on each side of it, in time of a strong pain, in order to press the head forwards to the space below the pubis, and prevent its being drawn back, upon the abatement or cessation of the pain.

“ The head being delivered, I was fain to use a good deal of force in extracting the shoulders; for although I had brought them down to the lower part of the ischium, I could not effect the delivery, until I introduced a finger above one of them, up to the middle of the arm, and by pressing towards the sacrum, brought it down with an half-round turn; upon which the body followed.

“ The circulation of the funis being stopped, the child, which was very large, and whose head was compressed in a longitudinal form, lay five or six minutes before it began to breathe.”

The woman recovered of this much better than of her former labours.

CASE II.—Two years afterwards, the doctor delivered the same patient of another child, when the labour proceeded much in the same manner; with this difference, however, that the membranes were unluckily broke by her motion in getting out of bed before she had any pains. “ I being called,” says he, “ in consequence of this accident, found the os uteri soft and yielding, though very little open, and the child’s head resting above the os pubis, as in the former case. She was blooded and received a clyster, as in the preceding case; but as the pains were not begun, and I was engaged at another labour, I left a midwife with proper directions

how to manage when the pains should come on, until I should be at leisure to come and attend her.

"Soon after I went away, the pains began, and a large quantity of waters was from time to time discharged. When I returned in the evening, I found the os uteri pretty largely opened, and the head pushed down to about one third of the pelvis; and taking it for granted, that she would have many more strong pains, and that all the waters were not yet discharged, I lay down in a bed to take some rest, because I had been much fatigued the night before, and desired the midwife to call me as soon as the head should be come down to the lower part of the pelvis. The patient bore many very severe pains with extraordinary courage: the child's head was in the situation described in about three hours after I went to bed, and in half an hour after I rose, the woman was safely delivered of a living child. Since the publishing of the above, she has been twice delivered in the same cautious manner by a midwife on my account, and the children were live-born, and did well."

CASE III.—The doctor attended a woman whose pelvis was also distorted, and rather smaller and narrower than that described in the preceding case. She had, the year before, been long in labour, and much exhausted before she was delivered by another gentleman, who was obliged to open the child's head.

"Being called," says he, "at the beginning of this second labour, I managed her much in the manner above described, and with great difficulty saved the child, which was small; but when I attended her again in her next lying-in, I could not save the child, which, though larger than the former, was not above the common size."

CASE IV.—Dr. Smellie's attendance was bespoke to a woman who had been four times delivered by another gentleman of dead children; and it was alleged her pelvis was so narrow and ill-formed that she could not possibly bear a living child.

"I was averse," says he, "to interfere with any other practitioner, and actually refused to undertake the case, until I was importuned by two of her acquaintance whom I had delivered, and assured that the other gentleman would never be employed again at any rate: upon these representations I promised to attend this patient, who was a little woman, of a delicate constitution, subject to icterical complaints, for which I advised her to consult some physician; though in this particular she neglected my advice, on the supposition that her health was mending.

"Soon after my first visit, I was called to her, when she imagined herself in labour, and found the mouth of the womb but very little open, though soft and yielding. Her pains seemed to proceed from her being constipated, yet I felt the head resting above the pubis, and was agreeably surprised to find the pelvis was not

so narrow as it had been described; for with the tip of my finger I could hardly reach the jetting forwards of the last vertebra of the loins, and upper part of the sacrum; from which circumstance I understood the pelvis at that part was not above half or three quarters of an inch narrower than those that are well formed. I therefore hoped, that if the child was not large it might be saved, provided I could keep up the woman's strength. With this view, after having encouraged her by communicating my opinion, I prescribed a clyster, after the operation of which she took the following draught:

(No. 6.) ℞ Aq. cinnam. ʒiʒ.

Spiritus cinnam. ʒij.

Confect. Damocrat. ʒʒ.

Syr. papav. alb. ʒij. Misce.

"It was now late," continues the doctor, "and I, being uncertain when labour would begin, stayed with her during the best part of the night, but went away as soon as the draught had thrown her into a profound sleep. She was free from pain all next day, but I was called the following morning, when I understood she had trifling pains in the night, though she had slept at intervals. I found the waters pushing down the membranes, and the mouth of the womb open to about the breadth of a crown; and she being weary with lying, I advised her to rise and take her breakfast. Having sat with her about two hours, during which the pains were but slight and returned seldom, and believing they would not grow much stronger until the mouth of the womb should be fully opened, the membranes broke, and the waters discharged, I proposed to go and visit some other patients, and laid injunctions upon the nurse to put the woman to bed, and send for me as soon as matters should be thus ripened.

"She seemed uneasy at my going, and afraid I would not return. She observed, she had been already two days in labour; that the other gentleman would not have waited so long, but have delivered her before this time, either by turning the child, or extracting it with instruments. The nurse too made reflections of the same nature.

"I paid very little regard to what they said of my predecessor, because I could not pretend to judge of his practice, unless I had been present and known the particular circumstances; and nothing can be more absurd than to justify or condemn upon the hearsay of ignorant people, who are always apt to run into extremes of praise or dispraise.

"I therefore told her, she had not been in real labour till the night before; that I would do every thing in my power for the safety of herself and the child; and begged, that if she was in the least diffident of my skill, she would send for the person who formerly delivered her; for I would not attempt to force matters, as there

was really no danger, even if the labour should continue eight days longer. This declaration quieted the anxiety of the patient and nurse, and I was permitted to go away after I had promised to return upon the first notice, which was about eleven; but at two I was sent for in a great hurry. The nurse had put her to bed, and I, during a strong pain, felt the membranes pushing down large and full through the os externum. As the pain went off, and they were relaxed, I perceived the head was at the lower part of the pelvis. I had scarcely time to put on a night-gown, when another pain returned, and the woman was immediately delivered of a small child.

"From the easiness of the birth, and the round form of the head, which was not at all compressed, I am inclined to believe that though the child had been of an ordinary size, it would have been saved.

"The patient recovered much better and sooner after this, than after her former deliveries; the jaundice vanished, and in two months she was healthier and stronger than she had been for many years."

Impediments to Labour arising from inflammatory or œdematous Swellings of the Pudenda, scirrhus Tumors, Polypus, or Callosity in the Vagina or Os Uteri.

CASE I.—A woman in the latter end of her first pregnancy, had œdematous swellings in her legs, thighs, and pudenda; and being obliged to walk one day through the city, was very much fatigued, and in great pain. When Dr. Smellie examined the parts, the swelling, which before was œdematous, seemed to have contracted an inflammatory hue; the left leg and thigh were much more tumefied than those of the right side, and the skin was something of a livid colour. Twelve ounces of blood were immediately taken from her arm, she was put to bed, and in consequence of fomentations, in three days, the pain and inflammation abated: but the swelling of the pudenda still continuing, he prescribed an emollient cataplasm to be frequently renewed, and from the first day she had taken two doses of gentle, cooling physic. On the fifth day she was taken in labour, and though the parts were still swelled, and stretched with great difficulty, she was at last safely delivered.

The poultice was still applied, the swelling gradually subsided, and she recovered tolerably well.

CASE II.—In the course of the same year, the doctor was called by a midwife to a woman at Chelsea who was in labour. The labia pudendi were so excessively swelled, that both patient and midwife believed the child could not possibly pass: and the tumefaction was attended with such pain, that for three days she had been obliged to keep her bed and lie on her back, without daring to alter that position.

When he examined her during a pain, the doctor found the os uteri very little open, and thence concluding labour was but just beginning, he punctured the parts in several places with a lancet; a large quantity of serous fluid was discharged, the swelling subsided, and the labour proceeded in a slow manner until she was delivered.

Such cases, he says, had often occurred in his practice, and he never knew them attended with any bad consequence; for when the swelling proved too great to permit the child to pass, it was commonly reduced by punctures, or when of the inflammatory kind, by bleeding, cataplasms, and fomentations.

CASE III.—A woman in labour of her first child, was attended by a midwife, who imagined that she felt the child's head, though very small, in the vagina; but examining again after a few pains, she felt that substance pushed to one side of the pelvis, and the membranes and waters forcing down at the other; these being broke and discharged, she found something like another head come down also. She being alarmed at this strange circumstance, recourse was had to a gentleman of the profession, who being also puzzled, made a pretence to leave her, and afterwards sent a message, desiring that another might be called, as he was indispensably engaged; but before any assistance could be procured, the woman was delivered by the labour-pains of a middle-sized child, and it was not till some months after, that the substance was found to be a scirrhus tumor, or excrescence of the polypus kind, adhering to the outside of the os uteri, which was afterward taken off by ligature.

CASE IV.—Dr. Smellie's attendance was bespoke to a woman who had recovered with great difficulty after a former tedious labour.

"When I examined," says he, "the os uteri was open to about the breadth of a crown, the membranes, with the waters, were pushed strongly down, and I felt uncommon hardnesses and strictures at the os uteri, in the vagina, and at the lower part of the os externum.

"The nurse, who formerly attended her, told me, that for some days after her last delivery, little fleshy substances were now and then discharged, of a blackish colour and bad smell; and that a long time elapsed before she recovered and was able to sit up.

"The labour now proceeded very slowly, until the mouth of the womb was fully opened, and the membranes breaking, the contracted vagina was gradually stretched by the head of the child; for notwithstanding the callosities which still continued, the neighbouring parts yielded by degrees, and although it was long before the os externum was sufficiently dilated, at last the child was delivered.

"I managed this case with great caution, because, from the imperfect accounts of her former labour, I supposed there had been a violent inflammation, and that the callous strictures were

the consequence of a partial mortification which had been separated and cast off by nature.

"I kept her mostly in bed, and during every strong pain pressed my fingers against the head, so as to abate the force of the protrusion and allow time for the relaxation of the strictures, by which means the labour succeeded beyond expectation."

Detention of the Shoulders and Body of the Child, after the Head is delivered.

CASE I.—Dr. Smellie was called to a patient in labour, after the child's head was delivered, as the midwife could not extract the body, though she had pulled a long time with a good deal of force. He found the navel-string furrounding the neck, and luckily hooking with his finger that part of it which was next the child's belly, it was so loose as to slip over the head. He undid two other circumvolutions in the same manner, and the child being disentangled, was immediately delivered.

In many other cases, he says he has freed the child from the circumvolutions of the funis, in the same manner; and he was disposed to believe, that it was very seldom if ever necessary to cut and tie the funis before the delivery of the child, until his opinion was altered by the two following instances.

CASE II.—The doctor was called in a great hurry to a woman whose delivery was retarded by the same cause described in the foregoing case, and tried to disengage the child from the circumvolutions of the funis, though without effect. Then without waiting to make a ligature in two places, as we are commonly directed to do, he insinuated his fingers between one of the turns of the child's neck, divided the funis in two with scissars, and delivered the body of the child, which was dead.

The face and neck were very much swelled, and in this last appeared a deep impression from the tightness of the circumvolution.

CASE III.—He was afterwards concerned in another case of the same nature. After having attempted, without success, to disengage the child by turning the funis over the head with his finger, he made a ligature in two places, between which he snipped it asunder.

The consequence of this operation was, the immediate delivery of a strong lively child: another ligature was made near the abdomen, and the superfluity of the funis cut off.

In a few cases the doctor found delivery retarded by the *shortness of the funis*; but the child was always safely delivered, by turning the body along the breech of the mother.

CASE IV.—Dr. Smellie was suddenly called to a woman in labour; the child's head had been delivered a long time, and the midwife had pulled with a great deal of force, at intervals. But before he arrived, the patient was delivered of a dead child,

whose shoulders were remarkably large. It happened in many cases of this kind that the child was lost.

CASE V.—“I attended,” says the doctor, “in a labour that was rendered tedious by the large size of the body after the head was delivered. I attempted to bring down the shoulders in the gentlest manner, according to the directions in my treatise, but found I could not succeed without using such force as would overstrain the neck, and destroy the child: for the shoulders were so high that I could not reach with my fingers to the armpits. I then introduced the blunt hook, but could not succeed, without running the risk of breaking the arm, or overstraining the joint at the shoulder; and, as the woman had strong pains, I resolved to wait their effect, without using any violence that might endanger the life of the child: accordingly, in three pains, I brought the shoulder down to the os externum, then turning one of the arms into the hollow of the sacrum, the body followed, and the child was born alive. From this and other cases, I have learned to wait the effect of the labour-pains, rather than to use violence in pulling at the neck.”

CASE VI.—In a letter from a correspondent, Dr. Smellie received the following account:

“I was sent for,” says the writer, “to a woman, aged forty, who had borne several children before. When I came I found the frontal and parietal bones separated from the rest, and without the vagina, the brain being evacuated. I slipped up my fingers, and found the os tincæ contracted about the neck of the child, and endeavoured to pull it away, but in vain. I then sent for another gentleman, who first got one hand into the uterus, and then slipped up the fingers of the other, and brought away the child. The woman’s pulse before delivery was strong, and she had little flooding; but we had not been gone a quarter of an hour when we were sent for again. They told us, that immediately after we went away, which was about five minutes after delivery, she was seized with a shivering and vomiting, and had fainted. We found her in a swoon, and held spirits to her nose; but she could not swallow; and died in about half an hour after delivery.”

To the writer’s enquiries, “What was the cause of her death? Was it owing to the lypothymia, occasioned by pain or loss of blood, which indeed was not considerable? Or might it not be owing to a rupture of the internal orifice, which the vomiting seems to have indicated?” Dr. Smellie replies, That in cases where the head is delivered, and the shoulders are so large, or the lower part of the uterus is so contracted, that the body cannot be brought away by pulling with moderate force, if the woman’s pains have not entirely left her, or she is not in a dying condition from flooding, or other symptoms, the best method is to wait for the effect of the labour-pains: “for,” says he, “I have lately been concerned in a case of a weak woman, where the body of a

living child was delivered half an hour after the head was without the os externum.

“ Now, as the patient was not weak, I think you might have waited and amused her with medicines. Or if she had become weak, and nature seemed insufficient, you might have pushed up your hand, and after having stretched the contracted part, tried to deliver the child. If this method had failed, recourse might have been had to the crotchet, as the child was already dead. This being fixed upon the body, would, by dilating the thorax or costæ, have diminished the bulk, and brought down one shoulder a great way before the other.”

The doctor says, he cannot pretend to ascertain the cause of the woman's death in this case. “ I have been concerned,” says he, “ in several cases, where, though the os internum was torn, the patient has recovered without vomiting, or any other bad symptoms; and have known other women die, as it were, instantaneously after delivery, though I always imputed such sudden death to their being exhausted by long labour, the sudden emptying of their vessels, and a greater loss of blood than their constitution could bear.”

SECT. III. *Of the METHOD of DELIVERY by INSTRUMENTS.*

When the powers of nature are insufficient to expel the child, extraordinary assistance must be had recourse to. In laborious births, this is chiefly of two kinds :

- I. The head is either extracted as it presents ; or,
- II. Its diameter is diminished previous to the extraction.

The head may be detained from advancing through the pelvis by all the causes formerly enumerated. These are chiefly included in four general ones :

1. Weakness in the mother ;
2. Narrowness of the pelvis ;
3. The bulk of the head of the child ; or,
4. Its disadvantageous position.

Whatever is the cause, when the natural pains begin to remit, and the parts of the woman begin to swell ; when her strength declines, her pulse grows feeble, and there is no prospect of advantage to be gained by delay ; measures must be taken for assisting the delivery, otherwise both mother and child may perish from neglect.

As instruments are never to be employed but in the most urgent and necessitous cases, and expressly with a view to preserve the mother or child, or both ; those of a safe and harmless kind should always be made trial of, in preference to those of a destructive nature.

SECT. IV. *Of the Use of the FORCEPS.*

The forceps is an instrument intended to lay hold of the head of the child in laborious births, and to extract it as it presents.

This instrument, as now improved, in the hands of a prudent and cautious operator, may be employed without doing the least injury either to mother or child.

In every obstetrical case, wherein manual assistance becomes necessary, the contents of the rectum and bladder should, if possible, be previously emptied.

The membranes also should be broken, the soft parts completely dilated, and the head of the child as far as possible advanced, previous to the use of any instrument.

The form and structure of the parts of the woman, the situation and progress of the presenting part of the child, must at this time be carefully considered. The concavity of the sacrum, for instance, will determine the progress of the labour. The touch of the vertex, fontanelle, lambdoidal, or sagittal suture, the fore or back part of the ear, or some part of the face, will ascertain the true presentation of the child.

The lower the head is advanced in the pelvis, our success with the forceps is the more to be depended on. For when it has proceeded as far as the inferior aperture, by means of this instrument it may be readily relieved: but when the head of the child is confined at the brim, both the application of instruments, and the extraction by this means, are exceedingly difficult and dangerous.

The head may be so firmly wedged in the pelvis, that the forceps can neither be introduced nor fixed without bruising or tearing the parts of the woman: whatever, therefore, insurmountable difficulties occur, either in applying or extracting with the forceps, the life of the mother must not be endangered by fruitless efforts: the head of the child must immediately be opened, and the delivery accomplished without further delay.

In laborious births, the proper forceps cases may be reduced to two, which include, however, a considerable variety. These are,

I. The smooth part of the cranium,

II. The face, presenting.

The head may present,

1st, Naturally, when low advanced in the pelvis, with the vertex to the pubes, and the forehead or face in the hollow of the sacrum. Or,

2dly, When higher in the pelvis, the vertex may present with the face laterally, the ears to the pubes and sacrum. Or,

3dly, The fontanel may present with the face to the pubes and vertex to the sacrum; or with the vertex to the pubes and face to the sacrum.

1. *When the head presents naturally.* The woman in this case must be placed on her back across the bed, properly supported; the accoucheur, seated before or in a kneeling posture, after gradually lubricating the perinæum and vagina, must proceed gently to stretch the parts, by passing the hand in a conical manner through the os externum vaginae, pushing it forwards by the side of the

child's head, till it advances as far as an ear, if possible: along this hand he is to guide a blade of the forceps, which with the other hand he introduces in the direction of the line of the pelvis, holding the handle backwards towards the perinæum, and keeping the clam closely applied to the child's head. This must be insinuated very gradually by a kind of wriggling motion, pushing it on till the blade is applied along the side of the head over the ear; he must then gently withdraw the first hand from the pelvis, with which he must secure the handle of the blade of the forceps already introduced, till the other blade be passed along the other hand, in the same slow cautious manner: the handles must then be brought opposite to each other, carefully locked, and, lest they slip in extracting, properly secured by tying a fillet or garter round them; but this must be loosed during the remission of pulling, to prevent the brain from being injured by the pressure. The extraction must be made by very slow and gentle degrees, and with one hand only, while the other is employed to guard the perinæum: the motion in pulling should be from blade to blade; the accoucheur must rest from time to time, and, if the pains are not gone, should always in his efforts only co-operate with those of nature. The child and mother will suffer less by going on in this gradual manner than by precipitating the birth, which can never be done but at the risk of destroying both. If, in making the extraction, the forceps slip, they must be cautiously withdrawn, blade by blade, and again introduced in the same manner. When the tumor of the perinæum forms, and the vertex begins to protrude at the os externum, the accoucheur must rise from his seat, raise the handle gently upwards, and, by a half-round turn, bring the hind-head from under the symphysis or arch of the pubes; remembering carefully to guard the perinæum from laceration and its consequences, to which it is now so greatly exposed.

In attempting the introduction of either blade, if it meets with any interruption, it must be as often withdrawn, and pushed up again in a proper direction, till every difficulty be surmounted; and if, from the smallness or constriction of the parts, the introduction of the second blade shall seem impracticable, the former one must be withdrawn, and the latter must be first introduced.

2. The vertex may present with *the face laterally in the pelvis*. It is always difficult to apply the forceps till the bulky part of the head has passed the brim; and here it is not only difficult to the operator, but extremely hazardous to the patient, to introduce this instrument till the ear of the child has got under the pubes. When the ears thus present to pubes and sacrum, the woman should be placed on her side or knees; the most difficult blade of the forceps should be first applied, which is the one under the pubes; when both are passed, and properly secured, the patient should again be turned to her back, before the operator attempts to extract; and the head in this case (as the quarter-turn can seldom be made with safety) should be delivered in the manner wherein it presents; because,

when confined any time in the passage, its figure is altered by the overlapping of the bones, in such a manner that it passes along, in general, with far less difficulty than to attempt to push up and make the mechanical turns; a work often altogether impracticable, by which contusion or laceration of the parts of the woman, and the most fatal consequences, may be occasioned. The handles of the forceps must here particularly be well pressed backwards towards the perinæum, that the clams may humour the curvature and intrusion of the sacrum, and accommodate themselves to the form of the child's head.

This is a case wherein the forceps often fail; if so, they will sometimes succeed by varying the mode of application, and fixing them over the forehead and occiput; if this method fails also, the size of the head must be diminished, and the extraction made with the blunt hook or crotchet.

3: The *fontanella* may present *with the face to the pubes*. This is the most common of the fontanel cases; though sometimes the face is lateral in the pelvis, sometimes diagonal, and sometimes it is turned to the sacrum. The true position is ascertained by the direction of the fontanel, and that of the ear. Here, as in other laborious births, nature should be trusted as long as we dare. The head does not always descend mechanically through the capacity of the pelvis, as some practitioners have supposed; nor will the deviation from its ordinary mode of descent always of itself influence the delivery, at least very rarely in such a manner as to require extraordinary assistance. In whatever manner the head presents, when it is situated high in the pelvis, the delivery cannot be effected without difficulty or hazard; in such circumstances, the application of the forceps will frequently baffle the utmost efforts of the accoucheur, and the consequences of such attempts may prove fatal to mother and child.

When extreme weakness in the mother, floodings, convulsions, or other urgent symptoms, render it necessary to force the delivery, whether the face be to pubes or sacrum, the forceps may be applied along the ears, in the same manner as directed in a natural labour; and the head, for the reasons already given, should be brought along in the manner it presents: the extraction should be made with great deliberation, that the parts of the woman may have time to stretch; the perinæum must be carefully supported; the forceps must be gently released, when the head is delivered; and the rest of the delivery conducted as in a natural labour.

In this case, when situated high in the pelvis, the fontanel presenting, and the face either to pubes or sacrum, the long axis of the head intersects the short diameter of the pelvis, and very often, though the forceps be applied, and a firm hold of the head be obtained, it is not possible to bring it along with all the force we dare exert. If this method therefore fails, the common forceps should be ~~cautiously~~ withdrawn, and the long ones applied, if possible, over

the forehead and occiput, when the size of the head, by the compression it suffers in passing along, being perhaps somewhat diminished, the extraction will be successfully performed. This method also failing, previous to the operation of embryotomy, Dr. Leake's forceps, with the third blade, may be had recourse to. But of this little can be said with confidence, till the instrument has been more generally employed. From the difficulty of succeeding in the application of the common forceps, it may, *à priori*, be concluded, that the introduction of a third blade, even in the hands of an expert practitioner, however ingenious the invention, is an expedient not easily to be put in practice. Neither is Roonhuijsen's lever, or a blade of the forceps passed up between the pubes and fore-head or hind-head of the child, in order to procure the delivery of the head, to be recommended in such cases: however some have boasted of its success, it is an instrument that may do much mischief; and few practitioners can use it with safety.

II. *Face presenting*.—Of laborious births, face cases, as we have already observed, are the most difficult and the most dangerous. From its length, roughness, and inequality, the face must occasion greater pain; and from the solidity of the bones, it must yield to the propelling force with much more difficulty, than the smooth moveable body of the cranium. Face cases are the most troublesome that occur in the practice of midwifery, and in which the most expert practitioners may be foiled in their attempts; and these attempts, if too early exerted, will be followed in many instances with fatal consequences. Whatever way the face presents, it should be allowed to advance as low as possible in the pelvis; by which means the access will be more easy, and the position, for the application of instruments, more favourable. In this awkward situation, much mischief may be done by rashness; whereas, if time be allowed, and the patient be properly supported, the delivery will generally end well.

The face may present with,

1. The chin to the pubes;
2. to the sacrum;
3. laterally.

From the difficulty of applying instruments in these cases, some authors recommend, as an universal practice, to turn the child, and deliver by the feet. But this in general is a dangerous practice, and seldom or never advisable, except when the membranes remain entire, till the os uteri is completely dilated, and the head continues loose about the brim of the pelvis; and even then the propriety of the practice is doubtful; because if the head is small, or the pelvis be well proportioned, the face will descend without much difficulty; and if otherwise, besides the risk in attempting to turn, the child may be lost from the pressure of the chord, or the difficulty of extracting the head after the delivery of the body.

When assistance becomes necessary, the best practice in face cases

is the following: Having placed the patient in a convenient posture, let the accoucheur in the gentlest manner pass his hand within the pelvis; and, during the remission of pain only, endeavour to raise the head of the child, so that he may put up the shoulders entirely above the brim of the pelvis, and thus change the position of the face: by this means, if successful, he will be able to reduce the first of these cases, so as to make the fontanel present with the face to the pubes; he will reduce the second so as to bring down the vertex, with the face to the sacrum; and the third he will reduce to a vertex case, with the face lateral. The delivery may be afterwards trusted to nature; which failing, there is easier access for the application of instruments to make the extraction, as already directed. The success, however, of the accoucheur, in altering the position of the head, by pushing it up, will entirely depend on the time he is called; for, should the head be firmly wedged in the pelvis, no force he dares employ will be sufficient to alter the posture.

If therefore every attempt to reduce the face, and make the vertex or fontanel present, shall prove unsuccessful, and symptoms are urgent, the forceps must be applied over the ears of the child, and the extraction performed in the best manner the operator is able. And, these failing, immediate recourse must be had to the crotchet.

1. In the first case, previous to the introduction of the forceps, the chin, if possible, should be advanced below the pubes.

2. In the second, the chin should be advanced to the inferior part of the sacrum. And,

3. In the third, the chin should be as low as the hinder part of the tuber ischii: and although in general the head is to be extracted as it presents, if the operator meets with considerable resistance, it must be gently pushed up and turned with the chin, either laterally, below the pubes, or into the hollow of the sacrum, according to the particular circumstances of the case, and in a direction best accommodated to the form and diameter of the pelvis.

In the Transactions of the Society in London, instituted for the Improvement of Medical and Chirurgical Knowledge, we find the following excellent observations on the management of cases in which the face of the child presents towards the os pubis, by Dr. John Clarke.

“ Every person (says the doctor) who has been engaged in the practice of midwifery, knows, that if in labour the face of the child lies towards the symphysis pubis, considerable difficulty is thereby frequently occasioned.

“ More force must be exerted by the woman, in order to expel the head so situated, and the labour will be protracted to a far greater length, than when the head is in the usual position, with the occiput towards the os pubis.

“ The ground of this difficulty is, because in this situation, the whole of the face must descend through the pelvis, before any part of the head can emerge from under the symphysis pubis, and be-

cause the bones of the face are incapable of undergoing any alteration from pressure.

" On the other hand, when the occiput lies towards the os pubis, the different bones of which the posterior part of the head is composed, are capable, in consequence of the incomplete ossification at the sutures, of very great alteration in their relative situation, so that the form of the whole head may become materially changed, and be better adapted to pass out of the pelvis.

" Thus the same head, from this variety in its position, may offer a very different degree of resistance to the powers of expulsion.

" If the head should, unfortunately, be placed with the forehead towards the os pubis, and the woman should be strong, her exertions and pains must be more violent in proportion to the increased resistance: but the labour, though prolonged very much beyond the ordinary bounds, may at length be finished by her own efforts. But in other instances the difficulty may be so considerable, that her strength may be worn out without accomplishing the birth of the child; and she must either remain undelivered, or artificial force must be substituted for the natural powers, which are found to be defective.

" This unfavourable position of the head may be detected by a very little attention to the situation of the anterior fontanelle, and of the sutures.

" If, on examination, the anterior fontanelle be felt, and the sagittal suture be found running from it towards one of the sacro-iliac joints, or directly towards the concavity of the os sacrum, there remains no doubt that the face will be born towards the symphysis pubis.

" All the best writers upon the practice of midwifery have taken notice of this cause of difficulty in labour: but they have been contented with describing it, without suggesting any means more especially suited to this case. A reliance upon time, when the woman has strength, and the application of instruments, when she has not, comprehend all the practical advice which is contained in their works.

" Chance first led me to the knowledge of the fact, that in some cases this position of the head can be remedied without subjecting the mother to any additional pain, or the child to any kind of danger.

" In a case where I had reason to expect some danger, I was desirous of knowing the precise position of the child's head, and whether it was in a situation which would admit of delivering safely with the forceps, if this should become indispensably necessary. I found the face turned towards the groin, and on endeavouring to ascertain whether the ear could be felt, I was obliged to make a firm pressure against the side of the head with my finger.—In doing this it appeared to be moved a little. Aware of the great advantage which might arise to the patient if I could succeed in bringing the occiput to the pubis, whether she were ultimately delivered

by nature or by art, I continued to make pressure upon the side of the head, till in the space of a few minutes the occiput was brought to the groin from the sacro-iliac joint of the same side; the consequence of which was, that, instead of the face, the occiput was born towards the pubis, and thus considerable pain and difficulty were avoided.

"Reflecting upon the event of this case, I thought that the ready alteration in the position of the head, might, in this instance, depend upon the pelvis of the woman being very large, relatively to the volume of the child's head, and that a similar change could not be produced by the same means in other cases of a similar presentation.—I determined, however, to make a trial in the next case which should occur. Another case soon occurring, this practice was attended with equal success.

"I have now met with fourteen cases, in thirteen of which the practice has succeeded; and as some years have now elapsed since the first case, I think myself fully authorised in recommending this method to be always pursued, when the face is found in the situation above described. A great deal of pain, and much time, will be spared to the patient by these means.

"The manner of effecting the change is, by introducing one or two fingers between the side of the head, near the coronal suture, and the symphysis pubis, and pressing steadily against the parietal, or frontal bone, during a labour pain. When this is done, it will be found, in most cases, that the head yields to the pressure, till at length the occiput is brought to the groin. This being effected, the rest should be left to the natural efforts of the woman.

"It is unnecessary to observe, that this alteration will be more easily produced, when the face lies towards the groin, than when the sagittal suture runs directly backwards to the sacrum: but even in this case, the change of position may be effected with much more facility than I before hand supposed to be possible.

"When the pelvis happens to be large, or the head of the child small, as there will be more room for the head to turn, the difficulty of doing it will become proportionably less.

"In some instances, where the pelvis is small, or the head large, or where the face is directly turned to the pubis, it may be impossible to change the direction: but these cases are comparatively rare; and as no harm can arise from it, the attempt may always be made."

SECT. V. *Of the Use of the SCISSARS, CROTCHET, and BLUNT HOOK.*

When the head of the child, from its size, unfavourable position, or from a fault in the pelvis, cannot be protruded by the

force of natural pains, nor extracted by the forceps, recourse must be had to more violent means, and the life of the child must be destroyed in order to preserve that of the mother. This operation was by the ancients called *embryotomy*.

When the head, from its extraordinary bulk, is detained at the brim of the pelvis; on evacuating the contents, the bones of the cranium immediately collapse, and the head is afterwards propelled by the force of the labour pains; failing which only, the extraction must be made with the blunt-hook or crotchet.

The unfavourable position of the head is of itself a cause insufficient to justify the use of destructive instruments, which ought never to be employed but in extreme cases, after every milder method has failed. From the difficult access to the cranium in order to make a perforation and evacuate the brain, a face case makes a very troublesome and dangerous crotchet one. Very luckily, in narrow pelvises, the face rarely presents, and very seldom advances far in that direction; at other times the position may be so altered, that the crown, the back of the ear, or some part of the cranium, can be reached; otherwise the crotchet must be fixed in the mouth, orbit of the eye, &c. and the head brought along in that direction, till the scissors can be employed to open the skull.

But the grand cause of difficult labour is, the narrowness or distortion of the pelvis. For when, at the brim, instead of four inches and a quarter from pubes to sacrum, it measures no more than one and a half, one and three-fourths, two, or two inches and one fourth, the use of instruments becomes absolutely requisite, and very frequently in those of two inches and one-half, and three inches; or when the diameters through the capacity, or at the inferior aperture, are retrenched in the same proportion, difficulties will in like manner arise, and the delivery, except the labour be premature, or the child of a small size, cannot be accomplished without the assistance of destructive instruments.

We judge of the form of the woman; by the progress of the labour; by the touch. When the fault is at the inferior aperture, the touch is pretty decisive; e. g. if a bump is felt in the os sacrum instead of a concavity; if the coccyx is angulated; if the symphysis pubis projects inwards in form of an acute angle; if the tuberosities of the ischia approach too near each other; or the one tuber be higher than the other; such appearances are infallible marks of a distorted pelvis. But when the narrowness is confined to the brim, this is only to be discovered by the introduction of the hand within the pelvis: the projection of the lumbar vertebrae over the sacrum, is a species of narrow pelvis that most frequently occurs in practice. In this case, the child's head, by the pressure it sustains between the pubes and sacrum, is moulded into a conical or sugar-loaf form, the parietal bones are squeezed

together, over-lapping one another, and will be felt to the touch when the labour is advanced, like an acute ridge, something in the form of a sow's back.

Instead of the complicated instrumental apparatus invented by the ancients, such as screws, hooks, &c. for fixing in, laying hold of, and extracting the head, as it presented, an operation in many cases difficult and dangerous, when the head was bulky or the pelvis narrow, as a woman frequently lost her life in the attempt; the practice of diminishing the size of the head, by opening the cranium and evacuating the brain, previous to the extraction, is a modern improvement, and an important one: the instruments for this purpose consist simply of a pair of long scissars, a sharp curved crotchet, and a blunt hook: these are preferable to every other, whether of ancient or modern construction.

When the accoucheur is under the disagreeable necessity of destroying the child to preserve the mother, she must be laid in the same position as already advised for the application of the forceps; and the same rules, recommended for the one operation, will in general apply to the other.

Thus, in the narrowest pelvis that occurs, previous to opening the cranium, the soft parts should be completely dilated, and the head of the child should be fixed steadily in the pelvis, and advanced as far as possible; for while the head is high and loose above the brim, the application of instruments is very difficult as well as hazardous.

The long scissars must be cautiously introduced into the vagina, directed by the hand of the accoucheur; the points must be carefully guarded, till they press against the cranium of the child, which they must be made to perforate with a boring kind of motion, till they are pushed on as far as the rests; they must then be opened fully, carefully re-shut, half-turned, and again widely opened, so as to make a crucial hole in the skull. They must afterwards be pushed beyond the rests, opened diagonally again and again, in such a manner as to tear and break to pieces the bones of the cranium; they must then be shut with great care, and withdrawn along the hand, in the same cautious manner as they were introduced, lest they should bruise or tear the uterus, vagina, or any other part of the woman. After a free opening in the cranium has thus been made, the brain must be scooped out with the fingers or blunt-hook, and the loose sharp pieces of bone must be carefully separated and removed, that no part of the woman be tore while the head is extracting. The teguments of the scalp should now be brought over the ragged bones of the cranium, and the woman should be allowed to rest an hour or two, according to her strength and other circumstances: the bones of the cranium will now collapse; and if the woman has much strength remaining, or the pelvis be not much distorted, the head being thus diminished, will be protruded by the

force of natural pains; otherwise it must be extracted, either by means of two fingers introduced within the cavity of the cranium, by the blunt-hook introduced in the same manner, guarding the point on the opposite side, while making the extraction; or, failing these, by the crotchet, which, though dangerous in the hands of an ignorant rash operator, may be employed by the prudent practitioner with as much safety as the bluntest instrument.

The method of introduction is the same with a blade of the forceps. The chief thing to be attended to is, to guard the point till it be applied against the head, and firmly fixed in its hold, which should always be somewhere on the outside of the cranium: provided a firm hold is obtained, no matter where, behind the ears, about the os petrosum, orbits of the eyes, maxilla inferior, &c. according to the presentation of the head. The woman being properly secured, and the handle of the instrument covered with a cloth, the operator must then pull, at first gently, afterwards more forcibly, resting from time to time, and endeavouring to make the extraction in the best manner the circumstances of the case will admit of. If the pelvis be much distorted, so that, by means of the utmost strength the accoucheur can exert, little purchase is made, he may apply to the opposite side a blade of the forceps, which are now so constructed as to lock with the crotchet; let him then bring the handles together, secure properly, and thus endeavour to make the extraction. Should this expedient also fail, the blade of the forceps must be withdrawn, the other blade of the crotchet must be applied, the handles brought together and secured, and the extraction made, moving from blade to blade.

Should the head present in such a manner, that, in attempting to extract it, the crotchet divides the vertebræ of the neck, and the head is thus severed from the body, an accident that can only happen in the hands of an ignorant blundering practitioner; the head must be pushed up above the brim of the pelvis, the crotchet or blunt-hook must be fixed under the axilla, the arms must be brought down, and the body extracted, by fixing the crotchet below the scapula on the sternum, or among the ribs; the head must afterwards be extracted in the manner already advised: or should the head in extracting be pulled from the body, as may happen when the child has been long dead, or when it is putrid, the delivery of the body must be effected by means of the crotchet as now directed; a method preferable to that of turning, as some advise.

If the head, instead of yielding to the force of pulling, be at last cut and broken in pieces, the operator must endeavour to bring down an arm of the child, to fix the crotchet about the jaw or neck, pull at both holds, and thus attempt to make the extraction; this also failing, he must bring down the other arm, fix the crotchet in the thorax, and, in a word, must tear the child in pieces, that the delivery may be accomplished by any means.

In face cases, where it is impracticable to alter the position, and when the pelvis is much distorted, the double crotchet is sometimes requisite; the handles must be well secured, kept well backwards towards the perinæum, and the motion always from blade to blade. It very seldom, however, happens, that there is occasion for the double crotchet: by this means the head is flattened in pulling; whereas, if one blade only can be employed, the head is lengthened, and, in pulling, can better accommodate itself to the shape of the pelvis as it passes along.

SECT. VI. CASES of NATURAL LABOUR, *in which the use of INSTRUMENTS has been required.*

In the selection of these we shall still follow Dr. Smellie, who, in Collection xxiv, first speaks of laborious cases, when the vertex presents, and the child's head is low in the pelvis, and delivered with the fillet.

CASE I.—“ I was called,” says he, “ to a woman in her first pregnancy, who had been long in labour, and very much fatigued by the officiousness of the midwife. I found the child's head at the lower part of the pelvis, where, as the midwife told me, it had remained from eight o'clock of the preceding night, though she had tried all the different positions; and I understood that the waters had been draining off for twenty-four hours.

“ Having lost some children in cases of the same nature, by turning, and others by being obliged to deliver with the crotchet, after having tried Mauriceau's fillet without success, I resolved to form a tillet into a noose, and endeavour to fix it round the upper part of the head with my fingers, hoping that I should succeed in this case, because I found the head was small, by moving my fingers easily round it. Yet before I would attempt this method, I prescribed ten drops of liquid laudanum, by which she procured some sleep. Her strength being recruited, the pains returned, though weakly, and the head was forced down a little by each, though it afterwards recoiled to its former situation: a circumstance which I at first imputed to circumvolutions of the funis, or the contraction of the os uteri round the neck of the child. The os externum having been sufficiently opened by the midwife, I tried to slide up the noose mounted on my fingers, along the side of the head, and after many unsuccessful efforts at length fixed it: then I pulled gently with one hand during every pain, while I pressed with the fingers of the other, at the opposite side; and thus pulling and moving from side to side, I made shift to deliver, though not without having used a good deal of force; and the hairy scalp was pretty much galled, but not so as to endanger the life of the child.

“ When I introduced the noose, I was certified that the diffi-

culty did not proceed from the contraction of the os uteri round the neck, by feeling the os tinæ at the middle of the head; and when the child was delivered, the funis was not circumvolved round the neck, so that I could not find out the cause that retarded the labour: I continued several years in this uncertainty, until I discovered that, in many cases, this obstruction proceeds from the contraction of the lower part of the uterus before the shoulders, or from the retention of these upon the pubis."

CASE II.—Afterwards the doctor was concerned in a case of the same nature, and found the woman much weakened by frequent discharges of blood. He delivered her, in the manner described in the former case, of a child that had been dead for some days; though he was obliged to exert greater force, because the head was larger, by which means the scalp was more galled, and part of it torn from the cranium.

CASE III.—In this case he tried to use the fillet upon a child which was higher in the pelvis, but could not fix it until he pushed the head above the brim; "then," says he, "my hand having more room, I accomplished my aim, and succeeded better in this than in the former instance, for the hairy scalp was not so much galled, because the woman had stronger pains to assist the expulsion."

He tried the fillet in several other cases, without success, and was obliged to deliver with the crotchet, because the children were large. In the three cases above related, the head being small, Dr. Smellie attempted to turn and bring the child by the feet; but this was prevented by the strong contraction of the uterus. It will be evident to the modern practitioner, that these were proper cases for the forceps. Dr. Smellie indeed says, "Had I then known how to use the forceps, I could have delivered with great ease, not only in these, but in several other cases where I failed with the fillet."

Laborious Cases, when the Head of the Child is low in the Pelvis, and delivered with the Forceps.

CASE I.—The difficulty in this case arose from weakness and anxiety of mind.

Dr. Smellie being called to a poor woman, found her in labour of her third or fourth child, and reduced to extreme weakness by long fasting, as she had not been able to go abroad for several days to beg in the streets. He immediately supplied her with some caudle, bread and broth: but her stomach was so weak, that it could retain but very little; for though he desired she should take it at first by cupsfuls, she was so greedy of nourishment that she swallowed too much at once. However, she was afterwards restrained from doing herself an injury, and her stomach kept enough to recruit her strength, in some measure. He found the os uteri largely open, the membranes broken, and the

head at the upper part of the pelvis. One of his pupils managed the labour, having been directed to persist in giving her nourishment, at proper times, and in small quantity, and to let her lie mostly in bed, that she might enjoy some sleep and refreshment.

"Indeed," says the doctor, "when we first arrived, all of us were of opinion that she would expire; but in two hours I found her pulse raised, and her strength recruited, though she was still weak, and her pains seldom recurred. Thus she continued all night, sleeping between the pains; and when I called in the morning, I found the child's head advanced lower in the pelvis. I could then distinguish, with my finger, the ear at the pubis; and by the fore-part of it, I discovered that the forehead was to the left side of the brim of the pelvis, and the occiput down at the lower part of the right ischium. I likewise perceived that the head was not large, because I could easily introduce my finger all round the lower part of it: and I felt the lambdoidal suture crossing the end of the sagittal on the right, and the fontanelle higher up on the left side.

"I left her again, after having desired the pupil to proceed in the same cautious manner, hoping that as the patient was much recruited, the pains would grow stronger, and deliver the child.

"Being called in the evening, and understanding that the pains were still weak, and the friends uneasy, I examined in time of a pain, and found the head was lower, with the left ear turned to the left groin of the mother, the vertex pushed out the perinæum, and parts adjacent, in form of a tumor, and nothing retarded delivery but the weakness of the pains.

"I waited an hour longer, encouraging the woman and her friends to exert their patience; but finding that, after she had undergone several pains, the head did not advance, and that I could easily assist the labour, I placed her in the position chosen for lithotomy, and gently dilated the os externum with my fingers during every pain. When one was going off, I slipped up the fingers of my right hand to the os uteri, on the left side of the vagina, introduced one blade of the forceps between them and the head, turned the blade up towards the woman's groin, over the child's ear, holding it in an imaginary line with the scrobiculus cordis: then withdrawing my right hand, with which I took hold of the handle, I introduced the fingers of my left, on the opposite side, but more backwards, to the space betwixt the sacrum and ischium, where the other ear was situated, within the os uteri, and pressing the head against the blade that was introduced, so as to keep it in its place, I with my right hand insinuated the other blade in the same manner on the right side of the vagina. Having secured and locked them together, I waited for a pain, and then pulled gently, by which means the head advanced slowly and gradually. This operation I repeated during every pain, the os externum was gradually dilated, the child's forehead

turned into the lower and back-part of the pelvis, and the vertex came out below the os pubis. By this time the tumor occasioned by the distension of the external parts, was become much larger, the perinæum was extended near three inches, the fundament stretched to two, and the parts between this and the coccyx much enlarged. The occiput coming out from below the os pubis, so as that I could with my finger feel the back part of the child's neck, I stood up, turned up the handles of the forceps, and gently moved from blade to blade, while at the same time I pressed the flat part of my hand upon the perinæum to prevent its being lacerated. Thus I continued pulling upwards, by intervals, until the head was safely delivered; then taking off the forceps, the body was easily extracted.

"While I was employed in tying the funis, some of the pupils observed, through the thin covering, that the woman's abdomen was still very big, and on examining in the vagina, I felt the membranes and waters of another child, which I brought by the feet, after the patient had taken some wine and water, and recovered of the fatigue of the first delivery."

Dr. Smellie used the forceps in this case, as a pair of artificial hands to assist the delivery, because the pains were too weak to expel the child.

CASE II.—In the same year the doctor attended another woman, in labour of her first child, who was reduced to a very weak and low condition, by a tertian ague and extreme poverty. He was obliged to assist with the forceps, in the same manner as in the foregoing case, but the head was not so soon delivered, because the parts were more rigid. The abdomen appearing still very large after delivery, he found there was a second child, which was likewise brought by the feet.

CASE III.—A woman was taken in labour of her first child, and reduced to a very low state by violent floodings, with which she was seized in the beginning of labour. According to the midwife's report the doctor found the mouth of the womb open and backwards, and the waters were not yet discharged. As the patient lost blood very fast, he introduced a finger into the os internum, and brought it forwards towards the pubis, and this irritation produced a pain which pushed down the waters and membranes: "these," says Dr. Smellie, "I tried to break, but not succeeding, I with two fingers pulled forward the os uteri a second time, and another pain ensuing, I slipped the point of my scissars between them, and as the child's head lay at a distance, easily snipt the membranes. The waters were immediately discharged in great quantity, and as the head came lower and locked up the parts, the flooding diminished, and in a little time entirely ceased. I then directed the woman to take a little broth frequently, and some wine and water, or taudie, until the

broth could be made, and desired the attendants to give her two spoonfuls of the following mixture every now and then :

(No. 7.) R Aq. cinnam. \mathfrak{z} v.

Tinct. opii gutt. xx.

Syr. papav. alb. \mathfrak{z} ij Mifce.

“ Her pulse being very low, the pains ceased for a considerable time, but by degrees she recovered from the extreme languor occasioned by loss of blood. As the discharge was stopped, I exhorted the women to wait patiently for the efforts of nature, and ordered the midwife to keep her quiet, and continue to administer the broth by little and little, as her stomach could bear it, until the loss of blood should in some measure be supplied. At the same time, as she was inclined to doze, I desired that she might have no more of the opiate. These directions I left in the evening ; and I was called again at six next morning, when the midwife told me the pains had returned soon after I left the patient, but were so weak, that although the child’s head was come low down, it could not be delivered without assistance. Upon examination, I found the vertex at the os externum, and the back-part of the neck at the pubis. The patient, though much recruited, being still weak, and the pains languid, I directed the midwife to proceed in supporting her with the broth, and prescribed a cordial mixture, without any opiate, to amuse the woman and her friends.

“ I received another call at twelve, when I found things in the same condition ; the pains being so feeble, that although the vertex was at the os externum, they had not force sufficient to propel it : I therefore began to dilate the os externum gradually during every pain, and moving her breech to the side of the bed, though in consideration of her weakness I let her lie on her left side, I introduced the blades of the forceps, one after another, at each side, between the sacrum and ischium, moving them forwards over the ears of the child ; and although I could not reach the os uteri with my fingers, yet they passed without much difficulty. When they were exactly opposite to each other, and in a line with the scrobiculus cordis, I managed them as in the two former cases, and delivered the head slowly.”

CASE IV.—A midwife, loquacious, extremely ignorant, and without the least tincture of knowledge in her profession, called Dr. Smellie to a patient, whose pains were just beginning in her first labour. She had imprudently walked her about and fatigued her so much, that she was quite exhausted, and the pains had entirely ceased. Finding, upon examination, the waters discharged, the head at the lower part of the pelvis, and the hairy scalp of the child, as well as the os externum of the mother, very much swelled, the doctor ordered her to be put to bed, and prescribed the following anodyne mixture :

(No. 8.) ℞ Aq. fontan. ℥v.

Tinct. opii gutt. xx.

Syr. Simp. ℥ ss. Misce.

He directed her to take two spoonfuls every half-hour, in order to procure sleep, and applied to the os externum a large emollient poultice. These steps were taken in the evening, and at three o'clock in the morning, when he attended, the woman had enjoyed tolerable rest, and the poultice being removed, and the parts washed, the swelling was found to be much abated. "We, therefore," says he, "waited several hours in expectation that the pains would increase, so as to dilate the os externum slowly, and effect the delivery. In this hope, however, we were disappointed: so that I resolved to assist with the forceps, as the head was so low down; though it was so swelled, that I could not distinguish its position: for I could feel neither future, ear, nor back-part of the neck. Nevertheless, I concluded, that as it was so low down, the ears would be to the sides of the pelvis, especially as the soft parts below were protruded by the head, yet not so much as to allow me to reach to the forehead, if backward, by introducing a finger in the rectum. However, I thought it highly probable, that the forehead was backward towards the sacrum, rather than forward to the pubis; and in this persuasion, I directed the woman to be laid on her back across the bed, with her breech a little over the side, her head being supported by the bolster and pillows, and two assistants holding asunder and supporting her legs. Then I introduced a blade of the forceps on each side of the head, and gradually assisting as in the foregoing cases, delivered the woman without lacerating her parts, or even marking the child's head."

CASE V.—A correspondent of Dr. Smellie's was called to a woman who had been two days and nights in labour, and very much fatigued. The pains had left her, and though the head presented at the upper part of the pelvis, he delivered her safely of a living child, whose head retained no impression or mark of the forceps.

CASE VI.—Another, residing at Folkestone, attended a woman who had been for a considerable time in strong labour, so that her face was excessively swelled, her eyes ready to start from her head, and she was hardly able to speak. The labia were very much tumefied, the vertex presented, the head was low in the pelvis, and lay diagonally, the forehead being to the side of the sacrum, and the occiput at the mother's groin on the opposite side, in which situation it had continued for the space of five hours.

After having placed her in a supine posture, he introduced the forceps, and delivered her of a dead child. As she laboured under a dysuria, from the tumefaction of the parts, ca-

talafms were applied, and in a few days carried off that complaint.

CASE VII.—A practitioner at North Walsham, was called to a woman who had been long in labour, and the waters were discharged. The child's head was low in the pelvis, the forehead being towards the left ischium, but so strongly compressed that he could not raise it. He was therefore obliged to introduce the forceps diagonal-wise, so that one blade was at the fore-part of the ear, and the other at the back-part of the other ear. After having turned the forehead backwards, into the hollow of the sacrum, he delivered the woman; and the midwife, and all present, were agreeably surpris'd when they heard the child cry, as they took it for granted its life could not be saved.

The writer of this account says he did not use this method until after he had waited two hours, to see if, by dilating the parts, the child, which was the woman's first, could not be delivered by the labour pains.

CASE VIII.—In this and the four following cases the difficulty arose from *anxiety of mind*.

"Being called to a patient," says Dr. Smellie, "the midwife told me that the labour had gone on as well as she could desire, until an officious woman came in, and in her hearing said, there was a fire in the neighbourhood. She was so much alarmed and affected at this report, that she was immediately seized with faintings and shiverings, and her pains in a manner ceased.

"Upon examination, I found the head low in the pelvis, the back-part of the neck being at the upper part of the pubis; from whence I concluded, that the forehead was turned to the concavity of the sacrum, and that the ears were at the sides of the pelvis; all the back and lower part of which was filled up with the parietal bones.

"The patient being of a weak and lax habit, her pulse low, and her spirits depressed, I prescribed the following:

(No. 9.) R Aq. cinnam. ℥v.

Sp. cinnam. ℥℥.

Tinct. castor.

Sp. ammorr. gutt. xxx.

Confect. arom. ℥℥.

Syr. croci ℥℥. Misc.

"Of this she took two spoonfuls frequently, by which her strength was a little recruited, but her pains continued weak and seldom recurred, and I plainly perceived, that the labour was retarded by nothing but the want of stronger efforts; for I knew the child was small, because I passed my fingers all round the head, which was not retracted after a pain.

"I had placed her in a position betwixt sitting and lying at the

bed's foot, one woman being behind to hold up her head and shoulders, and two others on each side to support her legs, in hope that the weight of the child might assist the delivery. But finding that although the head was so low it did not advance, and having waited to no purpose for the effect of a great many successive pains, which I encouraged and endeavoured to increase by stretching every now and then the os externum with one or two fingers, I thought it would be the safest method, both for the mother and child, to assist as in the former cases under this head.

"Although a supine position would have better favoured the introduction of the forceps, yet, as the patient was weak, and the weather cold, I kept her on her left side, her breech being moved to the bed-side, and her knees up towards the abdomen, with a pillow between to keep them asunder.

"Then insinuating two fingers of my right hand between the sacrum and left ischium, to the inside of the os uteri, I with the other introduced one of the blades, turning it forwards to the left ear of the child. Now withdrawing my right hand, with which I held this blade, until I pushed up the fingers of the left hand at the other side, between the sacrum and right ischium, to the os internum, I introduced the other blade, moving it forwards over the right ear, and taking care, as I went up, to turn the handles of the forceps more and more backwards. Finding the blades exactly opposite to each other, I locked them, and began to pull gently from blade to blade during every pain. As the head advanced and dilated the os externum, I, with my right hand, turned the handles of the forceps more and more towards the os pubis, at the same time pressing the palm of my left hand upon the perinæum, which was now pretty much distended. In a few pains the head was delivered, by moving the handles with an half-round turn towards the abdomen, and between the thighs, while, with the other hand, I slipped back the perinæum over the forehead and face of the child. Then taking off the forceps, the body was delivered, and the placenta coming down, was soon extracted."

CASE IX.—"Dr. Smellie's attendance was bespoke to a woman who lost her husband during her pregnancy: she was naturally of a weak and delicate habit of body, but her weakness was so much increased by the grief produced by this misfortune, that she looked like one starved by want of sleep, appetite, and digestion. "When labour came on," says the doctor, "I was afraid she would have sunk under it; for she fainted several times, and threw up every liquid or cordial that was given to support her.

"I kept her constantly in bed, and as it was her first child, the os uteri was very slowly opened by the waters and membranes, which luckily did not break, until this part and the vagina were fully dilated. As for the os externum, which I feared would not so easily yield, it was lubricated with pomatum, and I every now and

then gradually stretched it with my fingers during a pain. When the membranes broke, a large quantity of waters were discharged, the child's head being small, soon came down to the os externum, the pains entirely ceased, she could now keep some broth on her stomach, lay a long time quiet and easy, and enjoyed some sleep, by which she was very much refreshed.

"In about two hours after the waters ceased to flow, she was taken with some slight pains, by which the head was propelled in a slow manner, and pushed the external parts a little outward, though it had not force sufficient to dilate the os externum for delivery.

"After having waited in vain a considerable time, in hope that the pains would at last effect this dilatation, and the patient's strength beginning to fail again, I applied the forceps, and delivered her pretty much in the manner described in the foregoing case."

CASE X.—In the course of the same year the doctor was called to a woman by some of her neighbours, who told him it was not known that she was with child until she was in labour, when her mother had beaten, abused, and exasperated her to such a degree, that she had become frantic.

"We found her," says the doctor, "lying in bed, so sullen, that she would not speak. I examined as she lay, and feeling the child's head low in the pelvis, waited a long time for a pain, but to no purpose; she seemed to be afraid, and lay very quiet. Her breech being moved towards the bed-side, and kept in that position, until I introduced the blades of the forceps, as in the two last cases, with this difference, the forehead was backwards, though towards the right side, that is, to the membranous part that fills up the empty space between the sacrum and ischium.

"She lay quite calm and resigned, while I introduced and placed the blades opposite to each other, and locked the handles firmly with a fillet, to prevent their slipping off the head, in case she should prove refractory: then, she having no pains, I pulled the head lower and lower, until the perinæum and fundament began to distend, when I turned the forehead more backwards into the concavity of the sacrum and coccyx. I afterwards pulled at intervals, and, as the head advanced and os externum stretched, I turned the handle of the forceps more and more towards the pubis, and delivered the head and body of the child as in the two former cases."

CASE XI.—A medical gentleman at Boston in Lincolnshire, was called to a woman, who, the day before, had complained of an head-ach, to which she had been sometimes subject: early in the morning she was seized with convulsions, and lay insensible between the fits.

He found the os uteri open to the breadth of a crown, and very

thin; understood the membranes were broken; and the convulsions acted as labour pains. A small flooding beginning, he tried to assist by stretching the parts, which yielded with some difficulty; and the head being advanced, he delivered the child with the forceps, which had made a small impression, though without excoriation.

The woman continued insensible for three days, but had no fits after delivery, except a few that were slight in the evening, and she at length recovered. The child too, which was weak at first, did well.

CASE XII.—A robust young woman, in the ninth month of her pregnancy, was, without any apparent cause, suddenly seized with violent convulsions, about six o'clock in the morning, after having complained all night of an head-ach and sickness at her stomach, with vomiting, which, however, ceased when she was taken with the convulsions. "About ten o'clock," says Dr. Smellie, "I found her violently convulsed, and the os tincæ a little opened: as she had a florid complexion, and full pulse, twelve ounces of blood were immediately taken from her arm, a stimulating clyster was injected, and a cephalic julep prescribed; but, notwithstanding these remedies, she continued convulsed, and quite insensible. Being called again by the midwife at eight o'clock, I found her extremely low, her pulse being scarcely perceptible; and, upon examination, I perceived the child's head was, by the violence of the convulsions, forced low down into the cavity of the pelvis, with the ear towards the os pubis, and the forehead turned to the os ilium, on the left side.

"The forceps being introduced, in the manner described above, the woman was readily delivered, and the placenta, which firmly adhered to the fundus uteri, was afterwards brought away. She seemed easier after delivery, but her pulse was so low that it could not be felt, and she expired in about half an hour.

"From all these circumstances, it plainly appears, that if the woman had been sooner delivered, she might have recovered as well as the person mentioned in the former case."

Difficult Cases from the Rigidity of the Parts, Circumvolutions of the Funis, and Contractions of the Uterus, in which the Forceps were used.

CASE I.—The labour in this case was retarded by rigidity. Dr. Smellie was called to a young unfortunate creature, about the age of fifteen, who was in labour. The membranes were broken before he arrived, and the os uteri, which was open to the breadth of half a crown, was very thin, but felt rigid in time of a pain.

"The labour," says he, "proceeded very slowly all night, and

when I returned in the morning, I found the child's head low in the pelvis, and the vertex protruding the parts below, in form of a large tumor; but the os externum was so strait and rigid, that I could scarce introduce two fingers, and the pains were so strong that I was afraid of a laceration. In order to prevent this, I, with the palm of my hand, applied against the perinæum, restrained the force of the head, and when the pain went off, dilated the os externum by little and little. However, two hours elapsed before it was so opened, as to admit all my fingers, which were so tired and cramped, that two of the pupils were obliged in their turns to assist in the same manner, and in about two hours more, it was so largely dilated, as to receive about one third part of the child's head, that pushed out in a conical figure.

"By this time the poor creature was very much fatigued, and the pains were become so languid, that there was no longer occasion to press the hand against the external part. Though we continued to encourage her, and support her with caudle and broth, that the parts might have time to dilate, she and they grew gradually weaker and weaker, and I began to be afraid, that if assistance should be longer delayed, she might be in danger of her life; for she was every now and then attacked with fainting fits. When her pains began to grow languid, I had placed her in a posture betwixt sitting and lying, with her breech to the bed's foot, so that, without altering her position, I applied the forceps, and with great difficulty delivered her of a child, whose head being large, was squeezed to a great length, but in a few days retrieved its round form.

"The parts of the mother were so much inflamed, that for several days she laboured under much pain and difficulty of urine."

CASE II.—"In the following year, my attendance was bespoke to a woman in her first pregnancy, turned of forty, and of a thin, though healthy constitution. The pains proceeded slowly as in the former case, so that three days elapsed in a kind of lingering way, before the rupture of the membranes, which were pushed down in form of a long gut. The waters being discharged, the child's head, which was small, advanced downwards, pushing before it the os uteri, which was not enough dilated to allow it to pass; this I kept up during every pain, stretching it with my fingers, until I slipped it all round over the head. As the os externum, in the former case, had given me so much trouble, I now began in time to dilate it during every pain, and succeeded so well, that I was in hope the head would not be long retained after its arrival at that part. I found this precaution was right; for the woman had been so much and so long fatigued before the os uteri and vagina were sufficiently distended, that when the head came down and pushed out the external parts, her strength and patience were almost quite exhausted.

ed: nevertheless, by amusing and encouraging her, she exerted her courage and fortitude for two hours longer, though to very little purpose. At last, perceiving the pains were too weak to force down the head, and dilate the parts so as to let it pass, though about one fourth part of it was already protruded through the os externum; observing these circumstances, I say, I tried to introduce the whalebone fillet, described in my treatise, and alleged to be an excellent contrivance for helping along the head in such cases. This I endeavoured to insinuate betwixt the child's head and sacrum of the mother, but, as it could not be properly fixed over the chin, I withdrew it, and applying the forceps along the ears at the sides of the pelvis, assisted the delivery as in the former case.

"The child was large, and the head being compressed into a lengthened form, produced convulsions; of which, however, it recovered, in consequence of my allowing the funis to bleed a little."

CASE III.—A poor woman was taken in labour, which went on in the common way. The membranes and waters pushing down opened the os externum, and when they broke, the head came down to the middle of the pelvis; but when propelled a little further by two or three successive pains, it returned to the same place, and continued to advance and retreat in this manner for the space of several hours; so that the woman was much fatigued, and the pains became weaker and less frequent. "As this difficulty neither proceeded from the large size of the head, nor the narrowness of the pelvis," says the doctor, "I concluded it must be owing to the funis rather than to the contraction of the uterus before the shoulders, because this retraction of the head happened immediately after the rupture of the membranes, and before all the waters were evacuated: and I was certain that it could not be occasioned by the expansion which happens in the abdomen of a dead child, because I plainly felt it alive by the motion of its head."

"Thus convinced, I directed the patient to be placed in a posture between sitting and lying, which, I imagined, might assist the delivery. When the head was forced down in time of a pain, I introduced a finger into the rectum, and tried to keep down the head, but could not reach so high up as the forehead, which was to the right right side of the sacrum. I then, during every pain, gradually opened the os externum, which easily yielded, the woman having had children before; and introducing a blade of the forceps along each ear, that is, one at the left side of the sacrum, and the other at the right groin, I locked them together, so that when the pain recurred, I could keep the head down, and prevent its being retracted. In the time of the next pain I brought it lower, and turned the forehead into the hollow of the sacrum; and, in two pains more it was advanced to the lower part of the coccyx.

When it was in this situation, I introduced two fingers into the rectum to keep it down; but it being still too high up, I, during the next pain, brought it lower, when, finding I could command the head, by pressing my fingers against the sinciput at the root of the nose, I took off the forceps with my other hand, and helped the head along in the manner described in the lingering cases.

"The funis being thirty inches in length, was twice circumvolved round the neck, and once round the arm."

CASE IV.—"In the month of September of the same year, I attended a private patient, who had been very much weakened by flooding from time to time. The membranes broke, and the labour proceeded tolerably well; but when the head came low down, it was drawn back after every pain, as in the former case.

"Having fixed the forceps, I brought the forehead down below the coccyx; but, as her pains were weak, and this was her first child, I kept on the instrument until one third of the head was without the os externum, and I found I could easily keep down the head by pressing my fingers against the external parts on each side of the coccyx. After having taken off the forceps, I, during each succeeding pain, pressed the head upwards with that hand, while, with the fingers of the other, I slipped the os externum over the child's head. The funis was uncommonly short, and once round the neck."

CASE V.—Dr. Smellie was, at three in the morning, called to a woman in labour, by a midwife, who told him, the waters had been discharged two days, even before the os uteri was much opened; that after this discharge the pains were lingering, and some part of the waters continued to dribble until the evening before he was called, when the head came lower down; but now it was, after every pain, drawn back out of reach, and the pains were grown much longer.

"I took the proper opportunity," says the doctor, "of examining, and found the head propelled to the middle of the pelvis by every pain, after which it was drawn back to the upper part.

"After having seen her undergo several strong pains, by which the head was not at all advanced, I easily introduced my hand into the vagina of the patient, who had borne several children; and, as the pain abated, raised the head so high above the brim of the pelvis, that I could pass my right hand flattened along the left side, and over the forehead and the face of the child, where I found the lower part of the uterus strongly contracted. I continued to push further up and dilate the part so as to be able to bring the child by the feet; but finding this expedient impracticable from the force of the contraction, I withdrew my hand in the beginning of a pain, and the child's head was immediately forced down to the os externum, though it was afterwards retracted to the middle of the vagina. However, having succeeded so far, I

waited for the effect of several pains, which I hoped would force the head lower down, now that it had made such progress; but finding my expectation disappointed, and knowing it be an easy task to assist the delivery, I had recourse to the forceps. One ear of the child being to the pubis, and the other to the sacrum, and the woman lying on her left side, I would not alter her position, but brought her breech to the bed-side, and moved her head to the upper and back part of it. Then sitting in a low chair behind the patient, the forceps being privately disposed, I easily introduced the fingers of my right hand to the os uteri, between the pubis and head of the child, which was small; and insinuated one blade of the forceps, gently, that I might not hurt the bladder; then I introduced the other blade upon my left-hand, between the other side of the child's head and the sacrum, carefully turning back the handle, in order to humour its curve; and being certain that the instrument was well fixed, pulled gently from blade to blade, and kept the head from being retracted as the pain abated.

"I continued to assist in this manner, during every pain, until the occiput was brought to the lower part of the right ischium, then turning the forehead into the concave part of the sacrum, the occiput came out from below the pubis, and the head was slowly delivered."

CASE VI.—"In this case the waters had been long discharged before the head was forced into the pelvis, and we managed the labour in the cautious manner described above; yet after I had dilated the parts and applied the forceps, I could not by repeated trials bring the head through the os externum. Being assured from experience, that the obstruction proceeded either from the contraction of the uterus, or the detention of one shoulder above the pubis, and not from a tumefaction of the abdomen, because I felt a pulsation, though very weak, at the fontanelle, I disengaged the instrument, and raising the head again, found the difficulty was owing to the left shoulder's being over the pubis.

"As the woman lay on her back, I introduced my right hand, but could neither force the shoulders to the right side of the pelvis, nor push the child further up, so as to bring it by the feet, though the head was not large. I then, withdrawing my right, introduced my left hand on the other side, and raising the head, tried again to push up at the anterior parts of the child, so as to reach the feet; but failed once more, from the strong contraction of the uterus. However, getting hold of the left arm, I brought it down, and as I withdrew my hand, the head followed to the os externum and lower part of the pelvis. I turned the right arm to the right side of the sacrum, the pains being weak, again fixed the forceps, which I moved in a proper manner, and pulling gently at the handle, delivered the head, which was followed by the body."

CASE VII. Dr. Smellie was called by a midwife to a woman who had been many hours in labour, and found, that after the discharge of the waters, the head was forced low down by every pain, but afterwards drawn up again. He was likewise informed, that formerly she used to have large children and quick labours.

Encouraged by this intimation, he tried to turn the child, but was prevented by the strong contraction of the uterus; but in making this trial, and raising the head, he not only found the funis surrounding the neck, but likewise the uterus contracted before the shoulders. This last he dilated with his fingers as much as possible, then withdrawing his hand, applied the forceps, and delivered the child, which had been dead for some days. The funis was three times round the neck, being much tumefied and of a livid colour.

Labourious Cases occasioned by the large Size of the Child's Head, the Narrowness or Distortion of the Pelvis, when the Head is low, and delivered with the Forceps.

CASE I.—Dr. Smellie's attendance was bespoken to a woman who had lost her first child, in consequence of its large size. This second labour went on in the usual way, until the os uteri was largely opened by the waters and membranes, which breaking, the vertex advanced to near the middle of the pelvis. Then the pains ceased for about two hours, during which the patient lay easy, and enjoyed some sleep. After this intermission, a pain began to recur every now and then, and a good deal of water being discharged, they returned strong and frequent: as for the patient, whose constitution was weak, he kept her mostly in bed.

The parietal bones began to ride each other, the hairy scalp became loose and wrinkled, and the head was gradually and slowly squeezed down to the lower part of the pelvis, where it remained for a considerable time. The occiput was strongly pressed against the lower part of the right ischium, the fontanelle being at the upper part of the left; but the head was squeezed to so great a length, and so firmly compressed against the inside of the pubis, that he could not reach the ear with his finger.

After many strong pains the patient's strength and spirits began to flag, and both she and the friends became apprehensive that this child also would be lost, notwithstanding the encouragement the doctor gave, by telling them that he had delivered many women of living children after they had been much longer in labour.

The force of the pains was by this time abated, yet every now and then the woman was taken with one stronger, that forced the head a little lower, so that the child's left ear towards the left groin of the mother might be felt.

At length, the patient being still more exhausted, and no further advanced towards delivery, the forceps were introduced as she lay on her side, and, during every pain, an effort was made to bring the head lower, and turn the forehead backwards to the sacrum. "But, in this attempt," says Dr. Smellie, "the instrument began to slip, so that I was obliged to unlock them, and move each blade upwards again over the ears; the handles being fixed and tied with a garter, I turned the patient on her back, and directed an assistant on each side to support the legs: matters being thus disposed, I waited for a pain, and gradually delivered her as in the former cases." The child, whose head was squeezed into a lengthened form, seemed at first to be in a convulsion, but soon recovered, in consequence of my letting the funis discharge about two or three spoonfuls of blood."

CASE II.—Dr. Smellie was called by a midwife to a case resembling the former. He tried the whalebone fillet, which he could not get over the chin; so that finding the principal hold was on the face, he withdrew it, and waiting some time, until the patient and the pains grew weaker, he applied the forceps, and succeeded.

"My reason for withdrawing the fillet," says the doctor, "was, because I durst not venture to exert so much force as was requisite for delivery, lest the part of which I laid hold, should have been galled to the bone; for I knew one instance in which the fillet had been used, and actually scalped the child; and another, in which the child's under jaw had been cut to the bone by the force of pulling."

CASE III.—In the course of the same year, being called to a woman, who, according to the midwife's report, had been three days in labour, Dr. Smellie found the child's head at the lower part of the pelvis, and a large tumor on the vertex, protruded without the os externum. She had been in a slow kind of labour all Saturday and part of Sunday, when the membranes breaking, the pains became strong, and continued so all Sunday night. By these the head had been pushed down, but did not advance further than the situation in which he found it on Monday night.

"The patient," says he, "was much exhausted by fatigue and the length of the labour. Her pains being languid, I prescribed a cordial mixture, with the confect. cardiac.; and slowly dilated the os externum during every pain. By these efforts the pains grew stronger, and I expected the head would soon be delivered. But being disappointed in my hope, I thought it was a pity the woman should be kept any longer in such a disagreeable way; and as she lay on her left side, I endeavoured to raise the head, so as to know its position. I failed, however, in my attempt, and there was no room for introducing a finger or two, to feel either the neck or ear at the pubis; though as the head was so low down, I

thought it was probable, that the ears were to the sides of the pelvis. I then directed her to be turned on her back, and supported by assistants, as the patient in the former case, and sat down with a resolution to deliver, either with the forceps or crotchet, in order to save the woman's life; though I determined to try the forceps first, that the child also, if possible, might be saved. As the head, which was compressed into a great length, filled up all the lower part of the pelvis, so that I could not introduce my fingers to guide the blades of the forceps on the inside of the os uteri, I attempted to introduce them several times, until I was certain that they were safely past this place, and not on the outside of the os tincæ. Being convinced that I had so far gained my point, I began to bring the head lower during every pain, and at last delivered the woman of a dead child, whose head was squeezed to a great length."

CASE IV.—"I attended a woman in labour of her first child. She had undergone lingering pains all Sunday night, and I was called next morning at seven. But the pains being inconsiderable, the membranes unbroke, and the patient reserved, I was not allowed to examine until ten, when the pains grew stronger. Introducing my finger into the vagina, I felt the rectum full of indurated fæces, the os uteri soft, thin, and pretty open, the waters pushing down the membranes, and when the pain went off, the child's head resting against the upper part of the pubis.

"I immediately prescribed a clyster, which operated to our satisfaction; and as she had enjoyed some sleep in the fore-part of the night, I desired she might rise until the bed could be prepared before labour should be far advanced. Every thing proceeded in an easy and slow manner, and she took her pains in an easy chair, till about twelve, when she was pretty much fatigued. I then directed her to take some pains on the bed, and now felt the os uteri largely opened, the membranes pushed down large and full to the os externum; but the head was not at all advanced.

"Judging from this circumstance that it was large, I would not allow her to be put into bed too soon, because, if, after the rupture of the membranes, the head should not come down without difficulty, it might be necessary to assist the delivery by different positions; and, in the mean time, as the pains were strong and frequent, I directed them to get ready cloths to receive the waters as she lay on her side, for I now expected that the membranes would soon give way. Accordingly, the waters were in a little time discharged; but perceiving that the pains soon after abated, and the head did not advance, I allowed her to rise and walk about, and she took her pains sometimes in a standing and sometimes in a sitting position; though, in order to prevent her being fatigued, she every now and then rested on the bed, half sitting and half lying. By these means the pains increased, and at two

next morning the head was advanced to the os externum and lower part of the pelvis. That it might not be detained too long in this situation, I began to dilate the os externum a little during every pain, and these efforts kept the pains, which were become languid, in consequence of the fatigue sustained by the patient. The head was not at all advanced further at four o'clock; when I plainly felt the occiput strongly pressed against the lower part of the left ischium, the parietal bones riding one another, the head, which was large, squeezed to a great length, and one of the ears at the pubis. Perceiving the pains were not strong enough to push the head further, so as that the occiput might rise from the ischium to the space below the pubis, and the forehead turn back into the hollow of the os sacrum, and knowing that I could easily assist and alter the position with the forceps, I thought it was a pity that the mother and child should run any further risk, and ordering her to be put into bed, I applied the instrument, and delivered the child."

CASE V.—"A woman had been in labour of her second child, for many hours after the os uteri was largely opened, and the membranes had broke, and the midwife had assured the friends, that the head would be delivered by each successive pain. At length, however, the patient's strength beginning to fail, they sent for me at three in the morning, when I found the child's head low down, pushing out the parts, in form of a large tumor, and the scalp very much tumefied.

"After having tried in vain to assist the birth, by gently dilating the os externum, and during several pains, I directed the patient to be put in a supine posture, and as she was very weak, sat down with a resolution to deliver, either with the forceps or crotchet; for I found it was wrong as well as impracticable to bring the child by the feet. The head was so large, and compressed into such a lengthened form, that I could not push up my finger at the pubis, to feel the ear or neck; neither could I distinguish the situation of the head by the sutures, because the scalp was so much swelled: nor could I move the head upwards, in order to feel the upper parts, such as the ear, neck, or face. But supposing from the touch of the lower part of the head, that one part pressed more against the left ischium than the right, I concluded that the forehead was at the right side of the sacrum, and the occiput stopped between the left ischium and groin.

"In this persuasion, I introduced one blade between the child's head and the mother's right groin, and the other at the left side of the sacrum along the ears, then locking the handles, I tried to turn the forehead more backwards, but could not, until I had pulled the head a little lower, when I succeeded in delivering the woman."

CASE VI.—“ In the January following, my assistance was solicited in a case of pretty much the same nature. The woman was greatly fatigued and exhausted with labour, the child's head was compressed to a vast length, and so puffed, that I could not distinguish its true position; nor could I raise it so as to examine higher up. Nevertheless, as it was very low, I supposed that the ears were towards the sides of the pelvis, and having laid her in a supine posture, I introduced the forceps, insinuating one blade on each side, as usual. But the head stuck so fast that I could not move it lower; then I attempted to turn it to the right side of the sacrum, imagining the forehead might be to the left, as I had mostly found it; yet here also failing in my endeavours, I turned the other way, when it yielded with great ease, and the vertex coming out below the pubis, the head was brought along, and delivered without further difficulty.

“ One blade of the forceps was fixed before the left ear, and over the temple of that side, and the other behind the right ear and lower jaw; the impression was deeper than usual, but not such as to do any injury to the child.”

Dr. Smellie here remarks, that in the two former cases, he first of all tried to move the occiput downwards, and turn the forehead back to the sacrum, with one blade of the forceps. The following cases were rendered difficult in consequence of a small or distorted pelvis, when the child's head was low.

CASE VII.—Dr. Smellie says, “ My attendance was bespoken to a woman who had before lost a child, which was supposed to have been too large to pass through the pelvis; for she was of a small make and stature.

“ In January she was taken in labour, when I happened to be engaged, so that I was obliged to send a midwife to attend her; and before I could see her, the membranes were broken, the os uteri was largely open, and the head squeezed into the middle of the pelvis, in form of a cone or sugar-loaf.

“ The midwife had kept her mostly in bed to prevent her being fatigued, and I advised her to continue in the same situation, until she complained of being weary of that position, and of violent cramps in her limbs. Then getting up, she walked about the room, and took her pains sometimes standing and sometimes sitting; though I desired she would not fatigue herself by walking or standing too long, nor force down, except when the pains were strong. In this cautious manner she was managed all night, during which she rested at intervals upon the bed, until she was compelled to rise by the violence of the cramps that seized her as she lay; and, as I examined every now and then, I found the head advance by little and little, every third or fourth pain, which was stronger than the rest. At six in the morning the vertex

was pressed down to the lower part of the pelvis, below the right ischium; but at eight, it had made no further progress, though it was squeezed to a great length, and the parietal bones rode one another. By this time the patient was very much fatigued, her pains were become weaker, and at small intervals she was subject to reachings, which, however, supplied the defect in the labour-pains, by forcing the head so low as to protrude the perinæum and adjacent parts, in form of a large tumor. I waited some time, in hope that this extraordinary assistance would deliver the child; but the patient being suddenly seized with a fainting fit, I thought it was high time to have recourse to a more effectual expedient, and the child's left ear being to her left groin, and the forehead at the left side of the sacrum, I moved her breech to the bed-side as she lay on her left side, introduced the forceps along the ears, and in that manner safely delivered the woman of a living child, which had been retarded by the smallness of the pelvis, though it was not at all distorted."

CASE VIII.—"I was called," says the doctor, "by a midwife to a woman of a small stature, about ten in the morning, when I found the vertex at the lower part of the left ischium, and the head squeezed into a longitudinal form, as in the preceding case: as for the waters, they had been draining off for some time before I arrived.

"The patient being pretty much exhausted, was put in bed; and, as she had been seized with a looseness at the beginning of labour, and enjoyed no sleep the preceding night, I prescribed an anodyne mixture of *tinct. opii gut. xv. & syr. papav. alb. ʒiij. in aq. simp. ʒvʒ.* of which she took two spoonfuls immediately, to be repeated occasionally until rest should be procured. This prescription had the desired effect; and next morning about eight, I was called, and informed, that although the pains had been stronger, the head was very little advanced. I now felt the vertex had made some progress; the occiput was turned below the pubis, and the forehead to the sacrum, though not so low as that I could assist with my fingers in the rectum, or at the sides of the os coccygis. The pains were likewise become weaker, and the patient's strength began again to fail. The child's ears being by this time to the sides of the pelvis, and nothing wanted but pains to promote the birth, I directed her to be placed in a supine position on the bed, and with the forceps delivered her of a dead child.

CASE IX.—"I was called by a midwife to a woman who had been sickly from her infancy, and very much distorted. The membranes had been broken, and the waters discharged, several days before she was in labour, and the midwife, who had attended her since the preceding morning, assured me she had been in strong labour for four-and-twenty hours. I found the vertex pro-

senting, the mouth of the womb fully opened, and the head down to the lower part of the pelvis; but when I introduced a finger betwixt it and the pubis, I could not reach so high as to feel the ear, nor could I distinguish by the futures the right situation of the head. Nevertheless, the patient being weak and low, I directed her to be laid across the bed in a supine position, and introducing the forceps at random, by the sides of the pelvis, tried by gentle efforts, during every pain, to bring the head lower down; but finding I could not move it without using such violence as might be prejudicial to the mother and child, I withdrew the instrument, and resolved to wait a little longer; and, as the patient had slept but very little for two nights, and was much fatigued, I prescribed an anodyne draught, by which she procured rest and was refreshed. Then the pains returning, and forcing down the head, so as to protrude the external parts, I received another call, and found the back part of the neck at the pubis: from this circumstance, I knew the forehead was in the hollow of the sacrum, and that the ears were to the sides of the pelvis; I therefore, after having allowed her to take a few pains, which were weak, considered, that as the head was so low down, the assistance of the forceps might prove effectual in helping it along; so having placed her in the position described above, I introduced them along the ears of the child, and by pulling gently, during every pain, delivered the head, which was squeezed to a great length: but the os externum was so rigid, that half an hour elapsed, before it could be dilated so as to let the head pass, without laceration.

"After delivery, I introduced a finger into the vagina, and found the pelvis so distorted, from the jetting forwards of the upper part of the sacrum, that had the child been large, its life could not possibly have been saved. The head was of a lengthened form, and contorted to one side, and there was a deep impression above the ear. The forceps too, when first fixed, had impressed the forehead, though the mark disappeared in five or six days: but they made a very inconsiderable impression, when they were fixed the second time along the ears."

CASE X.—A midwife called Dr. Smellie to a woman, whom she had formerly delivered of a dead child; and she said, she had on that occasion felt an uncommon bump backwards.

"When I examined her," says the doctor, "the membranes were broke, and the child's head was sunk down to the middle of the pelvis, where it was retarded by a jetting-in at the middle of the sacrum; for, instead of feeling it concave, I found a prominence, as if one of the bones in the middle had been pushed before the rest; and the vertex of the child seemed to be pressed down in a flattened form, by the woman's pains, which were strong and frequent."

"I was called about three in the morning, and prescribed some innocent things to amuse the patient and her friends, who were extremely anxious, and went away, after having desired that she might not be hurried about or fatigued. I received another summons about nine, when I found the vertex squeezed down to the lower part of the pelvis, the woman exhausted, and her pains abated. As I at that time imagined, with others, that in labours, the forehead was mostly to the sacrum, and the ears to the sides, I caused the patient to be laid across the bed on her back, and applying the forceps along the head, at the sides of the pelvis, tried during every pain to help it along, that the child might not be lost. As the resistance was great, I gradually increased the force, and though the forceps slipped several times, I at last delivered the head, by grasping the handles more firmly, and pulling up towards the pubis. But the perinæum was torn by the sudden delivery, because I did not then know how to make the proper turns, and proceed in the slow and cautious manner which I have since adopted. The child's head was squeezed into a longitudinal form, flattened on the sides, with a deep impression on the cranium above the ears; and from an indentation on the os frontis, by a blade of the forceps, which had been fixed on that and the occiput, I discovered, that the ears were not to the sides, as I had imagined.

"These impressions had very much galled and inflamed the parts; but, in consequence of proper care, they digested, and the child recovered, and, as he grew up, the marks diminished and disappeared. I told the midwife and nurse that the patient's perinæum had been injured, but desired they would not make her uneasy, by informing her of an accident which would be attended with no bad consequences. Accordingly, the parts were perfectly healed in the space of twenty days."

CASE XI.—A midwife demanded Dr. Smellie's assistance in behalf of a woman, whom she had once before delivered, with difficulty, of a dead child in the eighth month. "In this labour, the membranes were no sooner broken," says the doctor, "than I received a call, and found the pains strong, the child's head advanced to the middle of the pelvis, and the vertex gradually descended to the lower part of the ischia, which seemed remarkably near to one another. The head being luckily small, and the occiput to the left ischium, I resolved, after having waited a considerable time, to turn the forehead backwards to the os sacrum, on the supposition, that the narrow part of the head would more readily pass between the ischia. Thus determined, I kept the patient on her side, and applied one blade of the forceps at the pubis, and the other at the sacrum along the child's ears, and with great difficulty turned the forehead to the sacrum; but before I could deliver the head, I was obliged to alter their position, fix

ing one behind the left ear, and the other before the right ear, backwards, at the right side of the sacrum."

Dr. Smellie attended in another case of this kind, in which he was obliged to open the child's head, on account of its large size.

CASE XII.—This was communicated to Dr. Smellie by a correspondent. The membranes had been broken, and the woman in strong labour for more than twenty hours, and was weak from being over-fatigued. After she had taken a few pains, he found the head did not advance, and considered, that although it was high, yet it might be dangerous to wait longer, on account of the patient's weak condition. In pushing up his hand into the vagina, he found one ear backwards, and above the upper part of the sacrum, which projected considerably forwards, with the last vertebra of the loins. The head felt also very large, and the forehead was to the right side; he introduced the blades of the short forceps, that were covered with leather; but being afraid that the handles were too short, he brought these out, and introduced a long kind uncovered, which was the kind he had used on former occasions. After he had fixed these properly, he tried several times, in vain, to bring the head lower. Upon which he resolved to give up that method and open the head. Finding, however, that the forceps did not slip, but kept a firm hold, he resolved to try and make one effort more, and after pulling with all his strength, and moving the handles of the forceps over the pubis, he got the head delivered; yet not without bending backward that blade of the forceps that was next to the pubis. She was thus delivered of a dead child about noon. In the evening she seemed to be in a good way, and in a breathing sweat. Next morning she was attacked with a violent looseness, which was restrained with opiates, but that evening she was comatous, and expired next morning: he supposed the last bad symptom was occasioned by their giving her, without his knowledge, half a pint of rum at two draughts.

As the writer desired Dr. Smellie's opinion of this melancholy case, he observed that he had contrived the forceps with short handles, on purpose that too great force might not be used; and he says, when these are not sufficient, he would open the head and extract with the crotchet. He advises his correspondent to consider how much the soft parts of a woman must suffer, by the bending so strong an instrument against them, as the blade of the forceps; and says, if he had been called in time to prevent the woman's being over-fatigued till the head came lower, there might have been a chance of saving the child. "When the pelvis is narrow," says he, "and the head large, and so high that you cannot or dare not turn the child, and the woman in danger from extreme weakness, it is right, first, to try the forceps: but when you find it

won't come along with a moderate force, the crotchet must be used; for we ought never to endanger the life of the mother to save the child."

CASE XIII.—Dr. Smellie met with a case of the same kind as the last, but not so difficult. "The membranes," says he, "were broken many hours, and the head was forced into the middle of the pelvis. An accoucheur was sent for, tried the forceps, but having no assistants to hold the woman firm, did not succeed; then he sent for me, and I was allowed to carry along with me four pupils. The ears were to the pubis and sacrum, the forehead to the left side, and the upper part of the os sacrum jetted in forward. As I could not turn the forehead with my hand a little backward, or pass the blade of the forceps along the ear at that part, I introduced it behind the ear at the side of the os sacrum, and the other at the fore part of the pelvis, towards the left groin, and before the other ear, so that the forceps was fixed diagonally on the head, and the same as to the pelvis. I used a good deal of force, by which I delivered the head, taking care to make the several turns in extracting it. The child had been dead many hours, the head was large, and squeezed of a very long figure; and the parts of the woman very much swelled. She was attacked with a violent looseness, which was restrained by proper remedies, and she recovered slowly. When the parts are inflamed and much swelled, the lochia sometimes are obstructed and fall upon the intestines; especially, if the patient has been exhausted by a tedious labour."

CASE XIV.—This Dr. Smellie received from a gentleman at Boston, in Lincolnshire. The labour went on in a slow manner, and by waiting patiently, the head, after many severe pains, was forced down into the pelvis. As the woman lay on her side, he introduced one blade at the pubis, and the other at the sacrum, and pulled with considerable force during every pain: but the forceps slipping, he was obliged to introduce them again as before; and, giving the forehead a turn backwards, the child was, in two pains more, delivered.

The same gentleman sent two other cases of women who had been long in labour with their first children: the ears were towards the pubis and sacrum, and one of the women was very fat, and about forty. He delivered both cases safely with the forceps, after finding the pains were going off, and the patients growing weak.

CASE XV.—In this case the gentleman attending seems to have been too much in a hurry. After using great force, he delivered the child, which was alive; but the head was much galled with the blades, and the woman was carried off in a few days by a purging.

In another case, the same gentleman tried to deliver with the

forceps when the vertex presented, and the forehead was to the pubis ; as he was not able to raise the head, so as to turn the forehead backwards, he pulled it along as it presented : finding that as the vertex pushed out the perinæum, it was beginning to tear, he took off the forceps, and the head was afterwards delivered with the labour-pains, and both mother and child did well.

CASE XVI.—In the Medical Journal, the following case of difficult parturition is published by Mr. Purton of Alcester, with remarks by Dr. Clarke of London.

“ Mrs. P. a hard-working woman, about six-and-thirty, has been the mother of four children. Her two first labours were very severe and lingering, the last more so than the first ; as, in the former, the child was born by the natural pains, and in the latter, with much difficulty, by the forceps. The third labour, she had lingering pains for three or four days, and I was with her for most of the time ; at length the os uteri was fully dilated, and the membranes burst. The head, with the anterior fontanelle towards the left inguen, was distinctly felt at the brim of the pelvis. The pains now very soon increased in strength, and after a little time the head advanced somewhat further, but, at last, although I waited patiently many hours, it did not move in the least degree. Considering the presentation, and the head not being low enough for the application of the forceps, I desired a consultation, and therefore sent over for Mr. Bloxam’s assistance. As soon as he arrived, he thought it proper to turn the child, which was done, and with the greatest difficulty the child was delivered, although I assisted him with all my strength ; the head was nearly separated from the body in the attempt, and a considerable indentation was observable on the side of the head, after the child was born. On examination, there was a very considerable projection of the sacrum, so as to lessen that diameter of the pelvis full an inch and a half. The fourth labour happened about six weeks ago. The head, in this case, did not advance so far in the pelvis, although the pains were much stronger, and continued so for some time ; at length the woman became so exhausted, that I thought it prudent to deliver her ; but fortunately, during this deliberation in my mind, the funis was forced down, and it very soon ceased pulsating. When this took place, I did not hesitate a moment how to proceed ; I immediately relieved the mother by evacuating the head ; which operation, of course, I performed with much less violence to my own feelings when I was convinced the child was dead. It was with much difficulty I brought the child into the world, after I had diminished the head ; and, on examination, the protuberance of the sacrum was much increased since the last labour, which shews that the bones must have been gradually becoming worse for many years ; and also explains why the two first labours terminated so favourably.” Mr.

Purten concludes by observing, that the woman recovered more rapidly than many do in the best of times. Dr. Clarke's observations are the following :

"The foregoing case," says the doctor, "appears to me to be worthy of being recorded, because it serves to shew the gradual steps of the disease, which is called *mollities ossium*, and the manner in which the pelvis, though it may have been once perfect, becomes more and more distorted, till it is absolutely incapable of admitting the passage of a child's head through it, without being diminished in size by evacuating the brain.

"The first labour was completed, as it appears, by the natural efforts. In the second, the head was brought through (not, however, without difficulty) by the application of the forceps. In the third, the head did not advance far enough to admit of the application of that instrument, partly from the face being placed towards the groin, but principally, as is most likely, from the increasing deformity of the patient's pelvis. The child, in this labour, was turned, and it was delivered by the feet. The head, however, was brought through, not without great force. Between the third and fourth labour the disease continuing to make progress, the deformity became still greater, so that it was necessary to deliver by the crotchet.

"I do not know that there is any instance recorded in which mollities ossium, once begun, has been by any means arrested in its progress; the consequence of which is, that the pelvis, first, for obvious reasons, and afterwards the whole skeleton, must give way to the superincumbent weight; and if parturition has been rendered difficult from this cause, the difficulty may be expected to be aggravated in each succeeding labour.

"Not so in the deformity arising from rickets. If the unfortunate subjects of this disease attain the age of puberty, the skeleton does not often yield afterwards to pressure. Hence the difficulty of parturition does not in them become increased at each succeeding labour, but the deformity remains where the disease left it, through life."

Laborious Cases, in which the Vertex presenting with the Forehead to the Pubis or Groin; the Patient was delivered with the Forceps.

CASE I.—Dr. Smellie says, "I was called to a woman who had been long in labour after the membranes were broken. I found the vertex was down at the lower part of the pelvis; but the scalp being much tumefied, I could not distinguish by the sutures the real position of the head. The woman being much exhausted, the pains weak, and the head low, I thought it was proper to assist the delivery, to prevent her and the child from being in danger. For that end, I caused her to be placed in a supine position, and during every pain, dilated the os externum, raised

the head above the brim of the pelvis, and introduced my fingers and hand flattened betwixt the head and sacrum, where I felt the back part of the neck, which informed me that the forehead was to the pubis. Considering that the difficulty or obstruction of the delivery proceeded only from the wrong position of the head, I first tried to turn the forehead towards the back part of the pelvis, and, failing in the attempt, from the slippiness of the same, I endeavoured to bring the child footling: failing in this effort also, from the strong contraction of the uterus, I withdrew my hand, and applying the forceps along the ears, used a good deal of force to extract the head as it presented. I brought it so low that I felt the fontanelle one inch or more below the pubis; but could not bring it further, unless I had torn the vertex through the perinæum and anus, which were now greatly stretched. Then I disengaged and brought down the forceps, and introduced a blunt hook, that had a round button on the end for that purpose, up along the side of the head, and above the chin. With this hold, I pulled down the forehead and face below the pubis, and then delivered the child. This was, at that time, the common method, when the head was large, and squeezed to such a length, as to prevent the forehead's coming out, either with strong labour or the forceps; but the bad consequences that might ensue both to mother and child, made me afraid to continue in this method of practice. For the perinæum was commonly torn, and that part of the child was sometimes so much bruised, as to produce a violent inflammation, which destroyed the child; but a lucky incident which happened the year following, gave me the hint of a better method, as in the following case."

CASE II.—"A midwife called me," says Dr. Smellie, "to a woman, in the morning, who had been most of the foregoing night in strong labour. I felt the vertex at the lower right side of the sacrum. Her pains were still pretty strong, although she had lost, both before and after the membranes were broken, a large quantity of blood. I found also the fontanelle at the left groin, which assured me, that the delay of the delivery proceeded from the forehead's being at that part. The patient being properly placed, I introduced the forceps along the ears, holding the handles, when fixed, towards the vertex, which was to the right side of the os coccygis. Then I began to pull from side to side, by which means the head advanced a little, but not so much as to allow the forehead to turn out below the pubis. In repeating these efforts, the forceps slipped off three times; though I did not observe, till afterwards, that one of the blades, by giving way, was the occasion of their slipping off the head. As I found I could not deliver the head, by pulling either downwards to bring out the forehead, or upwards, because the head would not yield that way, on account of the chin's being pressed against the breast, neither did I choose

to try the blunt hook, because of the bad consequences attending that method. I was also averse and loth to destroy the child by opening the head. While I paused a little, considering what method I should take, I luckily thought of trying to raise the head with the forceps, and turn the forehead to the left side at the brim of the pelvis where it was widest; an expedient which I immediately executed with greater ease than I expected. I then brought down the vertex to the right ischium; turned it below the pubis, and the forehead into the hollow of the sacrum; and safely delivered the head, by pulling it up from the perinæum and over the pubis. This method succeeding so well, gave me great joy, and was the first hint, in consequence of which I deviated from the common method of pulling forcibly along, and fixing the forceps at random on the head: my eyes were now opened to a new field of improvement, on the method of using the forceps in this position, as well as in all others that happen when the head presents."

CASE III.—Dr. Smellie, with his pupils, attended a woman in Drury-lane. The membranes had broken in the evening, and she had frequent and strong pains all night. When they sent for him in the morning, he felt something like the vertex down at the lower part of the pelvis; but they were all mistaken as to the position of the head; "for," says the doctor, "I, as well as my pupils, imagined, that, as the head was so low, the forehead must be turned back to the lower part of the sacrum; and that on account of the head's being squeezed to a great length, we could find neither neck nor ear at the pubis. We were likewise mistaken as to the sutures, supposing, what was called by the ancients, the back fontanelle, where the lambdoidal crosses the end of the sagittal, was the fore fontanelle, which was backwards towards the sacrum. I told all present, that as the head was so low down, and the delivery retarded by the weakness of the pains, it was safer for both woman and child to deliver her with the forceps; especially as I was pretty certain of succeeding, without doing injury to either, being certain, as she had formerly quick and easy labours, that the impediment proceeded only from weakness, and perhaps a larger child than usual, which might be in danger of being lost by longer delay. I had her then put in the same position, and applied the forceps in the same manner as in the afore-mentioned case. I then pulled gently every pain, and the woman being exposed to view the operation, I was surprised to see, what I imagined the occiput, come along from under the pubis, not with hair, but bald and smooth. Introducing my finger, I now plainly perceived, that we had been all mistaken as to the position; for I felt the root of the nose, and eye-brows within the pubis. As the head was now so far advanced, I thought it would be better first to try to bring it along in that manner: therefore, I continued to pull

along gently; but instead of pulling upwards as before, to raise the head from below the os pubis, I pulled downwards, to bring the forehead and face out from below that bone: they accordingly slipped out gradually, and when the chin was delivered from below the pubis, I turned up the handles of the forceps towards the face, pulled the head upwards, and delivered it according to the directions laid down in those cases where the face presents. The woman was not torn, the child's head was squeezed to a great length, but was neither hurt nor marked with the forceps."

CASE 1V.—The doctor was called to a patient by a midwife, who informed him that she had delivered the woman several times, and her labours were commonly tedious from her having large children; but that this was worse, and more tedious than any of the former; for although the waters were a long time come off, and the head had been low in the basin for many hours, so that she expected every pain would deliver the child, all endeavours had proved ineffectual, and she had sent for assistance, because she was afraid of losing both mother and child. "She also told me," says Dr. Smellie, "that she imagined the head did not present right, for she found the opening at the share-bone, and imagined this was the occasion of the difficulty. On examining, I found it as she had related, and was much pleased with the midwife's honest behaviour, and sagacious remark. I felt also the vertex backwards, pushing outward the os coccygis and fundament. Although the pains were much abated, and weaker, according to the midwife's account, yet every now and then she had one pretty strong. As I found her pulse rather low and sunk, I ordered her a cordial mixture, and waited with patience to try if the head would advance further, that the forehead and face might, by that means, be pushed out below the pubis; but finding it did not advance, and that the pains were not sufficient, I thought it was proper to use the assistance of the forceps. I then had her placed as in the former case, opened the os externum gradually with my fingers, scooped up the head above the brim of the pelvis, and as I slipped my hand flattened betwixt the sacrum and the child's head, I felt with my fingers the back-part of the neck, which more fully confirmed the midwife's opinion and mine, of the forehead's being towards the pubis. After I had brought down my hand, and found no advantage from several following pains, I introduced the forceps along the ears, having fixed them, and pressed the handles as far back as the perinæum would allow; and tried to bring the forehead and face below the pubis, by little and little, every pain, but did not succeed. Thus disappointed, I pushed up the head with the forceps to the brim of the pelvis, turned the forehead to the left side thereof, and brought the vertex down to the lower part of the right ischium; then turned the forehead backwards to

the concave part of the sacrum, the occiput below the pubis, and delivered the head and body as in the former case."

Those cases in which the vertex presents with the forehead to the groin or pubis, happen but seldom. If the head is small, it is commonly delivered with the labour pains, because the external parts, viz. from the os coccygis to the frænum labiorum, will frequently stretch down so much as to allow the forehead and face to come out from below the pubis; and if the pains fall off, and the woman become low and weak, the forceps will assist where the pains are insufficient. But if the head is large and squeezed to a great length, those parts will seldom stretch so much as to allow the delivery to be performed in that manner, either with the pains or forceps, without the danger of tearing the perinæum, and even sometimes the vagina and rectum into one cavity: besides, if the head stops there a long time, the child is frequently lost from the long compression of the brain, exclusive of the danger from bruising and inflaming the parts of the woman: to prevent all which inconveniences, it is better to help in time, and deliver, if possible, according to the above method; especially in those cases, where you cannot alter the wrong position with your hand, or one blade of the forceps, or turn the child, and deliver by the feet.

CASE V.—In this instance the woman had been in strong labour for many hours, after the waters were discharged. As the os uteri was not sufficiently open, the writer (a correspondent of Dr. Smellie's) administered opiates from time to time, which refreshed her much; but, after waiting a long time, and the woman growing weak, and falling into faintings, he tried to dilate the parts during every pain, and at last found, that what obstructed the head's advancing, was no other than the forehead's being to the pubis. He then introduced and fixed the forceps along the ears, but could not move or alter the forehead to the side and back part of the pelvis; yet, by dint of pulling with great force, he, at last, delivered the head, as it presented. The child was alive, and the mother recovered.

This gentleman gave an account of two other cases, in which the head presented fair; but as the women were much fatigued and weakened before he was called, he delivered each with the forceps, and saved the children as well as the mothers. One of the women was violently cramped in her limbs, when he introduced the forceps, and the other was attacked with a flooding.

Laborious Cases of Women delivered by the Forceps, the Vertex presenting, the Ear to the Pubis, and the Head higher in the Pelvis.

CASE I.—Dr. Smellie was called to a poor woman who had been deserted by her midwife, so that he received but an uncertain account of the case. "I was told," says he, "in general, that she had lost a great deal of blood, and that her midwife had

fatigued and wrought on her very much. I found her pulse very weak, her countenance pale, and cold sweats on her extremities. The mouth of the womb was largely opened, the membranes were broken, the head was small and down to the middle of the pelvis, the occiput to the left ischium, and the ear towards the right groin. I was also told that the labour pains had all along been trifling, and had entirely left her, after the waters came off. As the flooding was mostly abated, I ordered her to take some broth, or brown caudle, to support or nourish her. Having sent for those who were under my instructions, we attended some time to see if the labour pains would return, but to no purpose. Being afraid of censure, if she should die undelivered, I thought it was proper to supply the place of the pains, by assisting the delivery with the forceps, especially as she had formerly borne children, and the head was small. The ears being to the pubis and sacrum, I kept her on her side, and applying each blade of the forceps, brought down the occiput to the lower part of the left ischium, and turned the forehead backwards to the sacrum: then I delivered the head by turning the handles of the forceps forwards to the pubis, the thighs of the woman being kept asunder by a thick pillow placed betwixt her knees; at the same time supporting the perinaeum, with one of my hands, to prevent its being torn. Thus the patient was safely delivered of the child, and afterwards of the placenta; for though she continued long weak, she at length recovered. The child appeared to have been dead two or three days, the lips and scrotum being livid."

CASE II.—The doctor was called to a woman in Parker's-lane, who, as the people about her alleged, had been in labour eight days: they said, three midwives had attended and left her; that she was very poor, and in a starving condition. "I found," says Dr. Smellie, "the head of the child, in time of a pain, pushed down with its vertex to the lower part of the left ischium, but after the abatement of the pain, which was very weak, it was retracted to the upper part. As this was in the middle of the day, I sent for some broth and bread from a cook's-shop, in order to refresh her. I found, by her own relation, that the midwives had all tried to deliver her by hurrying and placing her in different positions: that she had got little or no sleep for two nights: that the waters came off the preceding day, and her pains had never since been stronger. Her pulse was weak and low; but, on taking a little nourishment, she recovered some strength. After having sent for those who were under my instructions in midwifery, I left her to the care of one of the elder pupils; advising him to keep her quiet in bed, and to give her from time to time a little broth or brown caudle; for although I found the case was such, that I could deliver her with the forceps, yet I thought it was better to try if she could be delivered by the labour pains, which I

hoped would grow stronger, after she should have enjoyed some refreshing sleep, and her strength should be recruited by nourishment. I was called again, about one o'clock next morning, when I understood she had every now and then slept betwixt the pains, which recurred at long intervals, and were still weaker than I expected, considering that her strength and spirits were much recruited. I found the head was in the same situation, and still drawn back as before. After examining more narrowly, I could easily feel one of the ears at the pubis, the fore part of it being upwards and towards the right side. Perceiving the head was not large, I told the attendants, that the delivery seemed to be retarded by the contraction of the uterus before the shoulders, and the weakness of the pains, which had not force sufficient to overcome that resistance: that I did not question, as she was now stronger, they might in time be sufficient, without any other assistance; but I thought it a pity to keep her longer in such a situation, as I could easily assist with the forceps, by pulling along the head by little and little every pain, and preventing it from being afterwards retracted. Accordingly, I kept the patient on her side, until I applied the forceps, then tied the handles together with a fillet, and turned the patient on her back. These previous steps being taken, I pulled gently during every pain, until I brought the head a little lower, and could turn the forehead from the right side of the pelvis to the sacrum: after this change was effected, I continued to assist and bring the head lower; and the parts below were gradually pushed out with the head in form of a large tumor. This being the woman's first child, the frænum felt very rigid, and was stretched with difficulty, and the perinæum, and parts about the fundament and os coccygis, felt still very thick. As I continued to keep down the head, and assist by pulling during every pain, these parts were more and more stretched, and became thinner: and the os externum was at last so much dilated, as to allow the head to pass and be delivered, as described in the last-cited case: but more than half an hour elapsed after the head was brought low down, before the os externum was so much dilated, that I durst venture to pull up the head from the perinæum, which I was afraid, every time I pulled, would crack and give way; for, it was now as thin as a piece of parchment at the edge, and was lengthened to more than three inches."

CASE III.—"I was called about seven in the morning, to a woman near the Seven-dials. The midwife told me, that when she was called the preceding evening, she had found her in pretty strong labour pains; that, about twelve, the waters came off, immediately after the discharge of which, the patient was thrown into violent convulsions, which went off and returned three or four times; and she had dozed and lain stupid betwixt the fits. I

examined, and found the head of the child lying much in the position described above, only the head was lower down, and the occiput to the under part of the right ischium. I could also plainly distinguish the lambdoidal crossing the end of the sagittal suture, the head squeezed to a longish form, one of the parietal bones riding over the other, and the fontanelle up to the middle of the left ischium. During the time of my examining, she was thrown into a fit, which lasted near a minute, and acted much the same as a labour-pain, by pushing the head a little lower, though it returned gradually to the same place, as the violence of the convulsion abated. The midwife had not observed this circumstance in time of the former fits, but told me, that it had continued in that position, without advancing, for two or three hours. As the woman's pulse was quick and full, I ordered her immediately to lose eight ounces of blood, and desired the midwife to send for me, if the convulsions should return, and the delivery be much longer delayed. The woman was now quite insensible, and did not seem to answer or take notice, even when we called to her aloud. I was again sent for about nine, when the midwife informed me, that the fits had returned oftener, and with greater violence. I found the head in the same position, but about an inch lower, and I now could feel the ear at the pubis. I tried to stretch the os externum gradually, every now and then, to see if it would bring on a labour pain, but to no purpose. In about twenty minutes, she was attacked with another fit, which was very violent, continued longer than the former, and had much the same effects. I then considered, that although it was probable, the repetition of these fits might act in the same manner as labour pains, and deliver the child; yet the continuance of them might still more and more endanger the life of the woman. Therefore I easily stretched the os externum as she lay on her side, and introduced the forceps, as in the former case; and as I found the head was large, I also tied the handles of the forceps, and turned her on her back. After I had brought the forehead to the hollow of the os sacrum, and was beginning to deliver the head in a slow manner, she was attacked with another fit, and as the os externum easily yielded, she was safely and soon delivered. The fits did not return; she fell into a plentiful sweat. The stupidity gradually wearing off, she next morning recovered her senses, and was agreeably surprised to find herself delivered, and the child alive."

CASE IV.—"I was sent by a relation to see an unfortunate woman, who was pretty old, and in labour of her first child. She was in a low and weak condition, partly from grief and anxiety, and partly from having been excessively fatigued by the midwife, who wanted to hurry over the labour as soon as possible. The membranes had broken the preceding day, and it was now about five in the morning. I found the head presenting, and down to

the lower part of the pelvis, though it had not begun to push out the soft parts in form of a tumor, I could not distinguish the position of the head from the futures, the hairy scalp being so much swelled. However, I judged that the forehead was to the left side of the pelvis, from feeling a part of the head pressed strongly against the lower part of the right ischium, and sloping upwards to the middle of the left: I could but just reach the tip of the ear at the pubis, with my finger, the head was so large, and so strongly compressed against that bone.

"I was informed that the pains had been very strong, though now they were weak, and recurred at long intervals. Her pulse was sunk, and she was taken with faintings and sickness at her stomach, which produced violent retchings. These, however, supplied the place of labour pains, and assisted the delivery by forcing down the head. To encourage these efforts, as well as to recruit her strength, I directed her to drink every now and then a little warm wine and water; and in this manner she proceeded for about an hour, when finding the head had made but small progress, and being afraid that her spirits would fail, I thought it was most expedient to call in the assistance of the forceps. After having gradually dilated the os externum, as she lay on her left side, I tried to introduce my finger between the head and the pubis, to the os uteri, in order to guide the point of the blade; but finding there was not room for both, and being afraid of hurting the bladder, I turned her on her back, so that she lay in the position, and was supported in a manner described in a former case; but as the season was very severe, I ordered a vessel with hot water to be placed by the bed-side, that the warm steams might mitigate the cold, to which she was more exposed in this than in the other position.

"Having fully opened the os externum, I turned the back of my hand down towards the sacrum, and raised or scooped up the head gently to the upper part of the pelvis; and now with my fingers I felt the right ear backwards, and the posterior part of the neck at the right side; and distinguished that the pelvis was not distorted, though the head was large and squeezed to a great length. Thus informed, I introduced one blade of the forceps, at the back part, before I withdrew my hand; then insinuating the other at the left side, towards the left groin, I moved it gently to the space below the pubis, and over the child's ear. The instrument being locked, I pressed the occiput from the right ischium with two fingers, while I gradually turned, as I pulled, the forehead backwards to the sacrum, and delivered the woman with the same precaution I had observed in the second case."

CASE V.—About twelve at night Dr. Smellie was called to a woman, by a midwife, who told him the patient had been two days in labour; that the waters had been discharged the preceding

day; that there was a cross-bone, which prevented the child's head from coming along, and had been the occasion of her losing two children before; and that, as the pains were grown weaker, and the woman was much fatigued, she had desired the relations to demand further assistance. "I found the head," says the doctor, "pretty nearly in the same position as that described in the former case, though higher up; but as I did not think the woman in great danger, and learned, from the different accounts, that she had been put too soon upon labour, and was over-fatigued, I desired she would lie quiet in bed, without forcing down, except when she was obliged by the pains. She complained of great pain at the juncture of the ossa pubis, as well as behind, where the ossa innominata join the sacrum; and her pulse being low, and the labour pains weak, I prescribed the following cordial and anodyne mixture:

(No. 10.) R Aq. Cinnam. ℥vss.

Pulv. Castor. gr. x.

Ammon. præp. gr. vi.

Syr. papav. alb. ℥ss. Misce.

Sumat Cochlearia ij statim, et repet. omni semihora.

"In consequence of this prescription, she lay quiet and slept between the pains, so as to be much recruited by six next morning, when I received another call. The head seemed to be but small, although it was squeezed down to a conical and flat form. As she had formerly lost two children, I resolved to attempt the saving of this, especially as I could easily feel the ear at the pubis. Having gently dilated the os externum, with my left hand, as she lay on her left side, I raised the head to the brim of the pelvis, and with my fingers felt that the whole obstruction proceeded from the projection of the upper part of the sacrum, with the last vertebra of the loins: at the same time I felt the back part of the neck at the right side.

"After I had withdrawn my hand, I waited some time, to see if the pains, which were but weak, would force the head lower down; but, finding it did not advance, I introduced one blade of the forceps at the right side of the sacrum, along the back part of the child's right ear, in order to avoid the projection of the last vertebra of the loins, then insinuated the second blade before the left ear, at the left groin of the mother, and as I brought down the head I turned the forehead to the sacrum. This alteration being effected, I unlocked the forceps, and fixed them over the ears, to prevent the child's head from being marked at the temples, and pulling slowly during every pain safely delivered the patient of a living child."

CASE VI.—In this case Dr. Smellie assisted in a similar way. The woman was taken in labour, and began to flood violently

but the discharge abated when the membranes broke, and the patient being weak, he delivered her pretty much in the manner described in the preceding case.

CASE VII.—“My attendance,” says the doctor, “was bespoken to a woman, who had been rickety in her youth, and was very much distorted. The labour at first proceeded in a gradual manner, the membranes pushing down and dilating both the os internum and os externum, before they broke: but after the waters were discharged, the pains ceased for some time. Upon examination, I found the pelvis was narrow and distorted, and with my finger felt the projection of the last lumbar vertebra: the pains, however, gradually returned and grew stronger, and the child’s head advanced slowly. I did not confine her to any particular position. I had been called at ten o’clock at night: the membranes broke about four in the morning: at six in the evening she began to be very much fatigued; by this time the head was squeezed into a conical and flattened form, down to the lower part of the pubis; and I found, by the futures, that the forehead was to the right ischium. I now confined her to her bed, that she might not be over-fatigued, and she took her pains, lying sometimes on her back, and sometimes on her side.

“About three o’clock in the morning, the head, squeezed to a great length, had advanced to the lower part of the pelvis, where it was so firmly locked, that I could not introduce my finger at the pubis, to feel the ear. But the patient being exhausted and weak, I introduced the forceps in the manner described in Case V. and tried to move the head so as to turn the forehead to the sacrum. These endeavours proving ineffectual, I withdrew the instrument, and waited till about six o’clock, when the head was pressed a little lower down; then having recourse to the forceps again, I succeeded, and safely delivered the woman, as in Cases II. and V. yet she complained very much of the distension and contusion of the parts. As for the child, it was dead, and its death in all probability occasioned by the long compression of its brain. Its head was squeezed to a very extraordinary length; a circumstance from which I at first imagined it was lower in the pelvis than it afterwards appeared to be.”

CASE VIII.—A midwife, who had formerly attended a woman of a small size, in a labour which had been very tedious from the difficulty in bringing along the head of the foetus which was still-born, the head being compressed to a prodigious length, and the woman’s life greatly endangered; in order to avoid censure, and prevent as much as in her lay the bad consequences that might attend her second labour, had recourse to Dr. Smellie’s assistance. He found the child’s head pushed down but a very little way into the pelvis, the forehead resting upon the left side of the upper part of the os sacrum, and the hind-head against the right groin. He likewise felt the sagittal suture running along, towards the

left of the os sacrum ; and the hairy scalp of the fœtus very much tumefied.

"The patient being laid on her back," says he, "and her breech brought to the bed's-feet, I opened the os externum slowly, and pushing up my hand along the side and posterior part of the pelvis, felt the left ear of the child, by which I knew the forehead was towards the back, though a little to the left side of the woman : I at the same time felt the upper part of the sacrum and lowest vertebra of the loins, projecting so far forwards as to reach within three inches of the ossa pubis. The pains being still pretty strong, I waited some time, to see if the head would advance, but it made not the least progress : the pains and patient grew weak, and the uterus was strongly contracted. As the former child had been lost by the long pressure on the brain, I resolved to try the forceps, and should that method prove ineffectual, as I feared it would, to open the head and deliver with the crotchet. Having, therefore, introduced the steel extractors, which, on this occasion, I preferred to those made of wood, I fixed them along the sides of the ears, and pulling downwards, at first, with a good deal of force, when I found the head descend to the lower part of the pelvis, I turned the forehead into the hollow of the os sacrum. so that the hind-head came out from below the os pubis : then directing one of my pupils to press the flat part of his hand against the perinæum, which was very much distended, I raised up the forceps, and pulled the head half-round, forwards and upwards, on the outside of the pubis. I afterwards delivered the body of the child, which was of a small size, and the lower parts were besmeared with meconium. One blade of the forceps had been fixed along the fore-part of the ear, and rested on the temple, while the other extended along the back of the left ear, to the cheek, and the impression which they made was very considerable. As for the woman, she recovered much better than I could have expected. When I afterwards introduced my hand to deliver the placenta, it went up with difficulty, and I was then confirmed in the opinion, that the distance between the projection of the lower vertebra of the loins and the os pubis did not exceed three inches."

Laborious Cases from the Presentation of the Forehead or Face, in which the Women were delivered by the Forceps.

CASE I.—Dr. Smellie was called by a midwife to a woman in Windmill-street, who formerly used to have very quick labours ; but this had been very tedious, from the wrong presentation of the child's head. The midwife told him, she felt something like the eyes towards the patient's left groin. "When I examined," says he, "in time of a pain, I found her information true, and that the forehead presented, with the face to the left side, and the fontanelle

to the right. In this situation I understood it had stuck for a long time without making the least progress, although the pains had been strong and frequent.

"While she lay on her side, and took several pains, I considered the case at leisure. As the pelvis was large, I resolved, if possible, to alter the position of the head, and should I fail in that attempt, to turn the child and bring it footling. But, after having dilated the os externum, so as to admit my hand, I found all my efforts ineffectual, either to raise the forehead to the left side of the pelvis, that the vertex might come down to the other side, or to return the head into the uterus, so as to deliver it by the feet; for the uterus was so strongly contracted as to foil all my attempts.

"Thus baffled in these endeavours, I introduced one blade of the forceps along the left ear, at the pubis, and the other on the opposite part, at the sacrum, and began to turn the face backwards to the left side of the sacrum, that the vertex might come out from below the pubis; but recollecting that the vertex would be turned so far up between the shoulders, as to render the delivery difficult, I reduced the face to its former situation at the left side, and bringing the head by degrees lower and lower, very easily turned the face and chin to the space below the pubis; then holding the handles of the forceps towards the patient's belly, delivered the child, whose forehead was raised in a conical form, while the back part of the parietal and occipital bones were squeezed flat. I tried with my hands to mould it into a better shape: but it had been so long compressed, that I could not alter the form."

CASE II.—"I attended," continues the doctor, "in a case where the face presented. The waters had been several hours discharged, and the midwife told me that the head had stuck a long time in that position without advancing in the least. When I examined, I found the chin to the lower part of the pubis, and the forehead to the os sacrum. The patient being greatly fatigued, and the force of the pains very much abated, I resolved to assist as soon as possible with the forceps, in order to deliver the child, which I knew to be alive; for in examining the situation of the head, my finger slipping into the mouth, I felt it move its tongue and lower jaw; though I did not mention this circumstance to the mother, that she might not be overwhelmed with anxiety, in case it should be afterwards still-born.

"The ears being to the sides of the pelvis, I caused the patient to be laid supine across the bed, and having gradually dilated the os externum, endeavoured to introduce the fingers of my right hand, to the os uteri, at the left side of the pelvis; but I could neither reach that part, nor raise the head to make more room for my fingers. Then I tried to insinuate a blade of the forceps, between the head and my fingers, in an imaginary line with the scrobiculus cordis; but finding a considerable resistance, and being afraid that

the blade would pass on the outside of the os uteri, I withdrew the instrument. However, after two or three trials, in which I kept the point closer to the head of the child, I effected my purpose, and introduced the other blade on the opposite side in the same slow and cautious manner. Then locking and tying the handles together with a fillet, I began to pull during every pain, and as I pulled with my right hand, I pressed down the chin with two fingers of my left. The perinæum and parts below, were now pushed out in form of a large tumor; the anterior part of the neck being brought down to the lower part of the pubis, I turned the handles of the forceps towards that bone, pulled the head upwards so as to raise the parietal and occipital bones from the back parts, and bring them slowly with an half-round turn upward through the os externum; and, at the same time, I kept my left hand firmly pressed against the perinæum, in order to prevent its laceration. I afterwards delivered the body of the child, whose face was livid, and very much swelled, though the ecchymosis went off as the tumefaction subsided. The form of the head, which was squeezed to a great length, I altered a little, by pressing the vertex and forehead betwixt my hands."

CASE III.—About nine o'clock in the morning the doctor was called by a gentleman who had formerly attended his lectures, to a woman in labour, and found the child's face presenting. He told the doctor a midwife was employed to deliver the patient, but his attendance had been bespoken in case any extraordinary incident should intervene; that the case having turned out a preternatural position of the head, his assistance was solicited, and he had that morning made several unsuccessful attempts to raise it into the uterus, and bring the child by the feet.

Upon examination, he found the face presenting, about two thirds of the head down in the pelvis, which he concluded to be large, because her former labours had been quick and easy, and the chin at the lower part of the right os ischium. He therefore gave it as his opinion, that she might be easily delivered with the forceps; but desired another gentleman (who had been called in) to take his own way, if he thought of any better expedient. "Upon his declining the task," says Dr. Smellie, "I caused her breech to be moved to the fore part of the bed, as she lay on her right side, and a pillow to be placed between her knees, which were held up towards the abdomen. These previous steps being taken, I introduced the fingers of my right hand up the vagina, between the child's head and the os sacrum, until I felt the os uteri, and insinuated one blade of the forceps along the ear, holding the handle down towards the chin, that the blade might go up in a line to the vertex, which was above the brim of the pelvis to the left side. As the point passed the os internum, I withdrew my left hand, to allow room for turning the handle backwards to the perinæum, that I

might the more easily push the point forwards, and follow the convexity of the sacrum. Taking hold of the handle with my left hand, I introduced the fingers of my right betwixt the pubis and the child's head, to the os uteri, and insinuating the other blade betwixt the head and my fingers, gently pushed it within the mouth of the womb: but as it met with some difficulty, I withdrew my fingers to give more room, and pressing the point closer to the head, introduced it slowly and with great caution, that the bladder and os internum might not be bruised.

"Both blades being thus introduced in the same direction, and the handles locked together, I pulled gently, moving the head from ear to ear, until it was brought lower down into the pelvis, then with the assistance of two fingers pressed above it, I turned the chin, and anterior part of the neck, forwards, from the lower part of the right ischium, to the space below the pubis; so that the forehead was at the same time turned from the left ischium to the lower part of the sacrum and coccyx: lastly, I moved the handles towards the pubis, and delivered the woman of a child, whose face was swelled, and whose head was compressed like that described in the former case: the long compression had rendered the arms paralytic for several days, though this misfortune was soon remedied by friction and embrocations."

CASE IV.—In about two months after the foregoing case happened, Dr. Smellie was called, by a midwife, to a woman in labour, and found the child's face presenting, and so excessively swelled, that he at first mistook it for the breech; but, on further examination, felt the mouth and chin towards the sacrum, and the fontanelle at the pubis.

"The midwife told me," says he, "that the waters had been long discharged; that notwithstanding a succession of strong labour pains, the head had made no progress for several hours; and that as the pains had greatly abated, she desired the relations to demand further assistance: at the same time she gave me to understand that the woman's former labours had been quick and easy."

"Her strength and spirits being exhausted, I encouraged her with hope, and refreshed her with a glass of warm wine; then directing them to place her in the position described in the second case of this collection, I gradually dilated the os externum. This dilatation being effected, I introduced the fingers of my right hand between the sacrum and the chin, and raised the head to the upper part of the pelvis, but found the contraction and resistance of the uterus so great, that I could not possibly turn the child and bring it by the feet. I then introduced the blades of the forceps along the ears, holding the handles as far back as the perinæum would allow, that the blades being in a line with the middle space between the umbilicus and scrobiculus cordis, might be nearer the vertex, and have a better hold of the head. Having locked the handles, I

endeavoured to bring the head lower down; but could not move it, then I tried to turn the chin, first to one side and then to the other; failing likewise in this attempt, I pushed up the head, moving from blade to blade, and turned the chin to the upper part of the left ischium; but as I again endeavoured to bring down the head, the chin stuck so fast that I was afraid of straining the lower-jaw, and obliged to push up the head a second time with the forceps. I now introduced two fingers above the chin, and pulling the forceps with my left hand, brought it down to the low part of the ischium, and turned it with the fore part of the neck to the face below the pubis; then standing up and pulling the handles towards the abdomen, delivered the head, which was greatly tumefied. Nay, after the body was delivered, the child lay a long time without breathing or giving any signs of life."

CASE V.—Dr. Smellie was called to a woman, who had been long in labour, and found the face presenting with the chin to the lower part of the sacrum, though a little to the left side; indeed, the face was so low down, as to protrude the parts of the woman in form of a tumor; and her pains were by this time much weakened. The weather being extremely cold, he allowed her to continue lying on her side, though a supine position would have been more convenient, and causing her breech to be moved a little over the bed-side, while her head and shoulders lay towards the other side, he introduced the forceps, as in the former case: but finding it impracticable to raise the head, he was obliged to pull it along in the time of every pain as it presented. The parts between the coccyx and os externum were gradually extended by the face and forehead of the child, and at last yielded, so as to allow the vertex to come out from below the pubis; then turning the handles of the forceps towards that bone, he delivered the woman safely of a dead child, which was, in all probability, lost by the long compression of its head in the pelvis.

Laborious Cases, in which the Head of the Child presented: and the Child was delivered with the Assistance of the Hand, Blunt-hook, or Crotchet.

CASE I.—"Early in the morning," says Dr. Smellie, "a midwife sent for me to a poor woman, and allowed me to bring one of my pupils as an assistant.

"The patient had been all night in strong labour, and, after the membranes were broken, the midwife also told me, that she suspected the head presented wrong, having found the fontanelle turned to the pubis.

"At first, when I examined, I was of her opinion, and imagined with her that this position retarded the delivery; but, on a second trial, and introducing my finger backwards towards the sacrum, I found a large open space also betwixt the bones of the head.

"Both the midwife and assistant being sensible of the same, I told them, that the difficulty of the case was occasioned by the head's being dropfical, and so much distended, that it would not pass, unless the hairy scalp was forced out with the contained waters, or perforated, to allow their discharge. The midwife said, if that was the case, it would be proper to relieve the woman of her misery as soon as possible, especially as she appeared to be much exhausted with the length of the labour, and had fainted several times.

"Having again examined in time of a few pains, and finding that the hairy scalp did not push down, that the pains grew weaker, and the patient being seized with another fainting fit, I also thought it was wrong to delay the delivery any longer. The weather being warm, and the woman unprovided with cloths to sponge up the moisture, I had her laid across the bed, with her breech a little over the side, and, in time of a pain, introduced two fingers of my left hand into the vagina. These I pressed against the open space betwixt the bones of the cranium, then, with my other hand, introduced the points of the scissars along my left, and betwixt the two fingers, to prevent their hurting the woman. The pain abating, I waited till another returned, and, when it was at the strongest, I perforated the scalp, by pushing the point of the scissars through the integuments. The water immediately gushed out, about three pints, in a full stream, into a two-quart basin, which the midwife held to receive it.

"The head being thus emptied, was forced down into the vagina, and this being her first child, it was, in a few pains more, delivered. During these, however, a pint more of water was squeezed out, so as to fill the vessel.

"As the pains were weak, I assisted, by pulling at the opening with my fingers. The child had been dead several days."

CASE II.—"The same midwife called me to another woman two years after, having, by her experience of the former case, found it was also a dropfical head, the bones of the cranium being separated at a great distance from one another.

"The woman had not found the child stir or move for several days, and but very weakly for a week or two before; the membranes had broken the day before; the pains had been frequent and strong; but the head did not advance.

"In time of a pain I found the hairy scalp very tense, and the os uteri fully open; when the pain abated, the bones of the cranium felt loose, and easily moved within the scalp, which was a certain sign that the child had been dead for some time, and that it would be wrong to keep the woman longer in pain.

"As she lay on her side, I perforated the scalp, as in the former case, and received the water on cloths laid below her for that purpose. Although there was a large quantity discharged, and the bones felt in a shattered condition, riding over one another, yet

even after many strong pains, they were only advanced to the middle of the pelvis.

"I then tried to assist, by pulling at the opening with my fingers; but that purchase not being sufficient, I introduced the blunt-hook within the skull. With the assistance of that instrument and my fingers, I gradually extracted the head, and the body being small, was easily delivered. The child appeared to have been dead several days, from the parts being livid, and the scarf-skin separating on the least touch.

"It is worth remarking, that, although the woman had the confluent small-pox in the fifth month of her pregnancy, she recovered, and went on to her full time: there was no mark of that disease to be found on the body of the child."

CASE III.—This was a laborious birth, from the large size of the child, and the smallness of the pelvis in the mother, who was delivered with the blunt-hook.

"I was called," says Dr. Smellie, "in the forenoon, to a woman, at some distance in the country, who had been several days in labour. She had been delivered twice before with great difficulty, although the children were small, and before the full time.

"The midwife told me, that the waters were gone off two days, and although the pains had been very strong, it was a long time before the head came down into the lower part of the pelvis. She had been in hopes that it would have been delivered every strong pain, during all the foregoing night; but as the pains went off, and the woman was grown weaker, she advised the friends to send for further assistance.

"On examining, I found the pudenda very much swelled, the head low in the pelvis, and a large tumor on the vertex, protruded through the os externum.

"The woman's pulse was low, intermitting, and like one in a dying condition; her pains were also very weak, and returned at long intervals. I informed the friends of the great danger the woman was in, even if she were delivered, owing to her extreme weakness, but told them, as a speedy delivery was the only method to save her life, I should do all in my power.

"As she lay on her side, I tried to force up the head, to give more room in the pelvis for introducing a fillet over the vertex, but it was so low down, and firmly locked in, that I could not move it.

"This method failing, and as there was no time to be lost, I opened the head with the scissars, and introduced the blunt hook on the outside of them; then I tried to deliver, by pulling that instrument with one hand, while, with the fingers of the other, I assisted in the opening; but the hook losing its hold, I introduced it on the other side of the head: and, as it did not give way as before, the

cerebrum was gradually discharged at the opening, as the head advanced ; after which the child was soon and easily delivered.

“ On examining the body, I was certain it had been dead many hours before delivery ; for the lips and scrotum were of a livid colour. The first hold of the hook was on the back part of the neck ; the second was on the fore part, above the lower jaw.

“ The swelled parts of the woman were turned black and livid, from which appearance I suspected a mortification was also probably begun in the uterus, especially as she had complained of violent pains in the abdomen the night before ; but they had been gone off for some hours, and therefore the assistants did not inform me of this circumstance till after delivery.

“ I was informed next day that the patient gradually grew weaker, became delirious, and died next morning. I am now pretty certain, from many examples since, that, if I had been called the day before, the woman would have been saved. I am also convinced, that, if I had known the use of the forceps, I should not have been obliged to open the child's head, especially as it was so far advanced, and the pelvis not distorted.”

CASE IV.—“ I was called to a woman who had been long in labour, and had not felt the child move or stir for twelve days, since which time she had been thrown into great fear, by a fall from a horse, and, on that account, the midwife supposed the child was dead.

“ When I examined the case, I found the head of the child advanced to the lower part of the pelvis : the discharge on the cloths was of a brownish colour, and had a strong mortified smell : the patient was much exhausted with the length of her labour, and her pains were weak.

“ Having placed her in a supine posture, I tried to turn, and bring the child by the feet, but could not raise the head above the brim of the pelvis. In making this effort, I was convinced, that the obstruction of the delivery did not proceed from a narrow pelvis, or a very large head.

“ With a good deal of difficulty, I introduced a fillet, in form of a noose, over the fore and hind parts of the child's head.

“ This being effected, I pulled gently every pain, which did not however move or alter the position ; this obliged me to increase the force, by which the fillet slipped from its hold.

“ As there was no time to be lost, I opened the head, and tried to deliver it as in the foregoing case ; but not succeeding, I withdrew the blunt-hook, and introduced a straight crotchet, by which the head was extracted, after using a good deal of force.

“ On trying to deliver the body, I was surprised that I could not bring it along ; and suspecting the difficulty was owing to the bulk or monstrous deformity of the child, I introduced the straight crotchet along the breast, but it lost its hold, after it had torn open the thorax.

" I again introduced the same instrument as high as the length of it would allow, and at last, with great force and labour, delivered the body.

" Upon examination, I found the difficulty proceeded from the belly's being greatly tumefied after death ; and that the crotchet, at the first trial, had only torn open the breast ; but by opening the abdomen in the second effort, the swelling subsided.

" The fillet had galled, and torn part of the scalp from the occiput."

CASE V.—The doctor was called, by a midwife, to a case of the same kind, in which he extracted the head with the forceps ; but not being able to deliver the body of the child, he was obliged first to tear open the thorax, and afterwards the abdomen. In this operation he found the curved crotchet succeed better than the straight one.

CASE VI.—" A midwife," says Dr. Smellie, " sent for me to an acquaintance of hers, at one of the work-houses, who had been five days in labour, and was neglected by the surgeon and midwife of the house.

" The midwife told me, that she had been with her all night ; that she had lost a great deal of blood ; and that she thought the child was dead, as the woman had not felt it stir for two days.

" On examining, I felt the head low down in the pelvis : but as she was so very weak, I desired the surgeon might be sent for, who was not to be found.

" As there was still more danger in delaying longer, I thought it a pity to refuse giving all the assistance possible. I first tried to deliver with the forceps, but was surprised that I did not succeed, when I found the head was not large, the instrument so easily introduced, and firmly fixed.

" Not succeeding in the above method, I opened the head, and, in trying to deliver it with the assistance of my fingers and the blunt-hook on the inside of the skull, I could not, with all my strength, bring it along. However, by extracting the occipital and one of the parietal bones, I had room to introduce my hand, so as to find with my fingers the under part of the uterus strongly girt or contracted round the neck of the fœtus. This I gradually dilated ; then bringing down one of the arms, and pulling at that, and the shattered bones and scalp, with both my hands, I at last extracted the child with greater ease than I expected.

" In pushing up my hand to dilate, my fingers passed the mouth of the womb that was girt round the middle of the head, when I was surprised to find another contraction before the shoulders. This was the first time I observed that different parts of the uterus would contract so strongly, especially the under part before the shoulders ; a constriction which has been commonly ascribed to the mouth of the womb.

"The woman recovered contrary to expectation, but was long in a weak condition. By the livid appearance of the lips and puerpera of the child, it was pretty certain, that it had been dead from the time the mother no longer perceived its motion in the uterus."

CASE VII.—"I was called to a case much of the same kind, only the head of the child was larger, and squeezed into a longish form; the woman was also stronger, and had not been exhausted with floodings; but, as she had been long in labour, the head low, and the labour pains quite gone off for several hours, I was afraid, if assistance was delayed, she would soon be in danger of her life.

"I first tried to deliver the head with the French forceps, recommended by Mr. Butler, in the Medical Essays of Edinburgh; but they were so long and ill formed, that I could not introduce them safely to take a proper hold.

"Although this case seemed very proper for the assistance of such an instrument, from the head's being so low; yet as I had not been used then to that method I did not repeat the trial, but attempted to deliver with the fillet, which, though firmly fixed, had no power to bring along the head, though I used a considerable force in pulling it.

"This method not succeeding, I waited some time, as the pulling the head with the sack had brought on some pains; but the woman growing weaker, and assuring me she had not found the child stir for seven or eight days, I thought it more than probable that it was dead, and the body so tumefied as to prevent the delivery.

"The woman and her friends being impatient, I thought it was wrong to run too great a risk of her life, and delivered the child, by opening the head, and extracting the body with the assistance of the crotchet. I could not deliver the head, even after the cerebrum and several bones of the cranium were discharged, until I had also opened the abdomen.

"The body of the foetus was all over livid, and much swelled, so that it had certainly been dead the time the woman mentioned. She herself recovered, as if no such difficulty had happened."

CASE VIII.—"A midwife in Hamilton," says Dr. Smellie, "sent for me to a woman at some distance in the country, who had been in severe labour for twelve hours after the os uteri had been sufficiently dilated, and the membranes broken.

"On examining, I found the head still above the brim of the pelvis, and kept up there by the projection of the lowest vertebra of the loins, and upper part of the sacrum. This straitened the passage, which felt not above two inches and a half from these bones to those of the pubis. I advised them to keep her quiet in bed, to prevent her being fatigued, and give time for the head to

advance in a slow progression, as well as to keep up her strength by refreshing sleeps betwixt the pains. These directions had the desired effect : but having waited from morning to night, and finding the head was only squeezed down a little, in a conical form, into the narrow part of the pelvis, I sent for another gentleman of the profession.

"After we had waited all night to no purpose, observing that the patient grew weaker ; and that the head did not advance, we thought it advisable to attempt the delivery, rather than to wait longer, and run too great a risk of her life. We also considered that the pelvis was so narrow, it would be impossible to save the child's life ; and, if it was uncommonly large, it would be even dangerous to the life of the mother.

"Having placed her in a convenient position, and, in a cautious manner, opened the protruded scalp (which was much tumefied), together with one of the parietal bones, with the scissars, I introduced two fingers of my left hand, and tried to pull down the head in time of the pains, but finding that purchase was not sufficient to move it, I introduced the blunt hook, first within the cranium, but this not succeeding, was withdrawn ; then I introduced two fingers on the outside of the head, at the right side of the sacrum, and, along the same, the hook, with my right hand, to the upper part of the head. After resting a little, until a pain returned, and introducing again the fingers of my left hand into the opening, I began to pull ; but finding this hold of the instrument forced the head too much against the pubis, I moved it forward toward the right groin, and then, with my fingers and the hook, pulled the head backward and down towards the lower part of the sacrum, at the same time desiring the woman to force down with all her strength.

"To prevent as much as possible any injury to the parts of the woman, I repeated these efforts by intervals, which at last brought along the head squeezed in a long and flat form. This being effected, the body was delivered in a slow manner, but not without a good deal of force.

"On examining the child's head, I found the first hold of the hook was above the ear, and the second, on the opposite side, above the under-jaw ; the opening with the scissars was made through the left parietal bone.

"My fingers and thumb had so firm a hold, as to assist in pulling the head backwards from the pubis, while the force above, with the hook, made the bones collapse, as the cerebrum was discharged through the perforated part ; but, although the head was small, it required a great deal of force to bring it through the narrow part of the pelvis.

"The woman recovered tolerably well, but did not live to have another child."

CASE IX.---“ I was called, at three in the morning, to a woman who had been a considerable time in labour, and felt the head of the child presenting, about a third part of it being pushed, in a longish form, into a very narrow and distorted pelvis.

“ As the patient seemed to be in no apparent danger, and as both herself and friends were anxious to have her delivered, and could not be persuaded to have more patience, I ordered a mixture to amuse them, and advised the midwife not to fatigue her any more, but to keep her as much in bed as possible.

“ When I called again, in the afternoon, I found the head advanced a little lower, and the woman much refreshed with rest and sleeps betwixt the pains. I still encouraged her to have more patience, and continue to take every now and then some of the mixture.

“ I was sent for again next morning, about two o'clock, and found her strength much exhausted ; her pains, which had been frequent and strong, were now seldom and weak ; besides a small flooding began to come on.

“ The head had not advanced lower, only the hairy scalp was formed, by the long pressure, into a large tumor on the vertex, which prevented my knowing the exact position ; but as it was still high in the pelvis, I judged one of the ears was towards the sacrum.

“ Although I was afraid that the woman could not be delivered with the labour pains, yet as she imagined she felt the motion of the child, I waited many pains, and tried if putting her in different positions would forward the delivery ; but finding her spirits flag more and more, and the flooding increase, I began to be afraid of losing the patient, if I longer delayed my assistance.

“ Having laid her in a proper position, as has been described in page 211, Case III. and dilated the os externum, I forced up the head, to be more certain of its position ; but could neither reach the ear nor back part of the neck with my fingers, without using more force, which I durst not venture to exert, on account of the flooding.

“ However, this trial made me sensible of the head's being so large, that there was no hope of saving the child by turning, and bring it footling ; and it was impossible to deliver it with the forceps.

“ To prevent further danger, I opened the head of the foetus with the scissars, and, in time of the weak pains, tried first to deliver with my fingers and the curved crotchet, covered with its sheath within the opening ; but although, in making different efforts, I pulled out the frontal, occipital, and right parietal bones, I did not succeed, until the crotchet was slipped up on the outside of the shattered remains, above the under-jaw.

"As my fingers were cramped, I rested a little; after which untying and bringing down the sheath that covers the point of the instrument, and finding it had a firm hold, I at last brought out the head.

"Having wrapped a cloth round it. I made several trials to deliver the body, but could not move it with all my force, until I introduced the same crotchet along the breast and belly, and by opening these, as in the 4th case of this collection, I at last effected the delivery, and indeed not without much fatigue.

"By the livid appearance of the child's body, the woman and friends were convinced, that it had been dead for some time, and that the difficulty proceeded from the uncommon bigness, as well as the tumefaction of the abdomen.

"This was the woman's first child; I attended her in a second and third; her labours were tedious, and the children large, but, at last, safely delivered."

CASE X. In this the pelvis was narrow, and the child, which was large, was delivered with two crotchets.

"The child presented much in the same manner as the foregoing; she had pretty strong pains, and was every now and then attacked with severe fits of vomiting; but as she was in no apparent danger, I ordered a few draughts with Sp. Mindereri.

"Being again called, and finding that the patient was growing weaker, and she being much fatigued with the vomiting that still continued, as well as the length of the labour, I first tried to turn the child: but in pushing up the head, I found it large, and the pelvis so narrow that the child could not be saved by that method.

"I also found that the forceps or fillet could be of no service; however, I rested some time, to observe if, after stretching the parts, they would allow more room for the head to advance lower; but finding no alteration, and she being attacked with faintings, I immediately opened the head, and tried to deliver with the blunt hook, as in the former cases.

"This method not succeeding, and as the forehead was at the left side of the pelvis, I introduced one of the curved crotchets along the left side of the sacrum, above the under jaw; but finding that purchase pulled the head against the pubis, I introduced the other at the opposite side of the sacrum, and moved it gradually over the occiput of the foetus, to the right groin of the woman.

"Finding that both the instruments had a firm hold, and locking them together in the same manner as the forceps, I began and pulled with greater and greater force, which brought down the head lower in the pelvis; but as it stopped there, I unlocked the crotchets, and pulled by the one that was at the right side, by which it was forced backwards towards the sacrum, and delivered. Although I used all possible caution, yet it required so great force

at the last pull (this being the first child) that the perinæum was a little rent; but by the prudence of the nurse, it recovered without the woman's knowledge."

CASE XI.—"I received a message from a gentleman of the profession, desiring me to come and assist him to deliver a poor woman, and to bring two pupils with me, which the patient had consented to, to make me some recompence for my trouble.

"He had been with her all night; her pains at first were strong, which growing weaker, he tried several times to turn the child and deliver by the feet; but not succeeding, and being much fatigued, he had recourse to my assistance.

"I also tried the same method to bring the child footling, turning the woman upon her knees and elbows, according to Daventer's advice, that the pressure or force of the muscles of the abdomen might be diminished; but after several trials, I could not move the head so as to introduce my hand into the uterus.

"The face was much swelled; and the chin being to the sacrum, I introduced the forceps along the ears at the sides of the pelvis; but after several efforts, could not move the head lower, or alter the chin, so as to turn it to the groin or pubis.

"I afterwards tried to open the head with the scissors at the os frontis which presented at the pubis; but the bones were so thick, that I could not make an opening sufficient to allow a discharge of the cerebrum.

"All these different methods failing, I introduced the two curved crotchets, one on each side, which tore open the bones of the cranium; then the contents were evacuated, the head was diminished, and the fœtus delivered.

"The gentleman told me afterwards, that although the woman had suffered so much from the length of the labour, and from the violence of the delivery, yet she recovered as if no such difficulty had happened."

CASE XII.—"A midwife sent from one of the courts at the Seven-dials for me, or one of my pupils, to assist her in delivering a poor woman there.

"When I arrived at the house, the midwife told me that the woman had formerly easy labours; and that she at first imagined the breech of the child presented, and had waited a long time till her patient's strength began to fail; but at last she found her mistake, and that in place of the breech, the head presented, and had stopped in that position for many hours; on which account she had desired further assistance to save the woman's life.

"I found the face much swelled, and the chin to the left side of the os coccygis. In trying to raise the head, to give more room for introducing a blade of the forceps, I felt it so firmly locked that it was impossible to move it.

"As I did not certainly know whether the child was dead, and

being desirous to save it, if alive, I with some difficulty introduced one blade of the forceps over the left ear at the left groin, and the other at the right side of the pelvis of the woman, and right ear of the child. After trying several times to deliver the head with that instrument, in time of the weak pains, and not succeeding, and being afraid that the patient would lose her life, if not soon relieved, I introduced the two-curved crotchet, and delivered her in the same manner as in the former case.

"The head was smaller, and not stretched to so great a length; it came easily out below the pubes, without my being obliged, in the extracting, to turn the chin below the share-bone.

"The crotchets had made a large opening in each of the parietal bones near the vertex, which allowed the greatest part of the contents to evacuate, so that the head was diminished, and came along with less difficulty.

"The woman complained afterwards of great pain, both at the sacrum and pubes, which seemed to proceed from overstraining the ligaments of these bones; but by keeping her quiet, and promoting plentiful sweats, she at last recovered."

CASE XIII.—This case was laborious; the pelvis narrow, the head large, and delivered with the crotchet.

"A midwife called me," says Dr. Smellie, "to a chairman's wife, who had been delivered four times by different gentlemen, who could not save any of the children.

"On examining, I felt the head of the child above the brim of the pelvis, and kept forward over the pubes, by the jetting in of the upper part of the sacrum, and the last vertebra of the loins, which formed a very acute angle.

"Although the woman had been three days in strong labour, yet she seemed to be in no danger, and as she had got little sleep, I ordered her a draught with tinct. opii, grt. xx. and fyr. papav. alb. ʒij. and desired the night be kept as still as possible.

"Being called again next morning, I found the head advanced a little lower in the basin, but as her pains were still good, and as she had got little sleep with the former draught, I ordered the same to be repeated; and leaving one of my pupils with her, desired him and the midwife to send for me if they found it necessary.

"They sent for me about eleven at night, giving me notice that the patient had slept every now and then, betwixt the pains, which were strong; but as they were now abated, the woman much exhausted, and no hopes of the delivery, they thought my assistance was necessary.

"Near half of the head was now squeezed down in a flat form at the distorted brim of the pelvis. By my encouraging the patient, and giving her some warm wine, her strength and spirits were recruited, and the pains grew stronger.

" I attended several hours, in hopes that the head would advance lower, and that if not delivered with the pains, yet there might be a chance of saving the fœtus with the forceps; for it would have been impossible to have brought it alive by turning in so narrow a pelvis.

" Finding at last the woman and pains grew weaker, and that the head still continued in the same position, the patient also begging to be relieved, and calling upon me if possible to save the infant, I thought it would be cruel to delay my assistance longer, and resolved to do all in my power to save the mother and the child also.

" As she lay on her left side, across the bed, I gradually stretched open the os externum, and introducing the fingers of my left hand along the left side of the sacrum, found the jutting in of the lower vertebra of the loins kept the bulk of the head forwards over the ossa pubis; I perceived also the head was large and much ossified, and that the os frontis was to the left side of the pelvis.

" Although I had small hopes of succeeding, yet I tried if the child possibly could be saved by delivering with the forceps, and first introduced the short kind; but the distortion of the pelvis prevented their taking a proper hold, and when I attempted to extract, they slipped off the head; then I introduced a longer pair that were bent to the side.

" As one of the ears was to the pubis, and the other above the projection of the distorted bones at the back part of the pelvis, I was obliged to fix one blade over the os frontis, and the other over the os occipitis, by which means I obtained a firm hold, as the bending of the forceps fitted the curvature of the sacrum; but as the biggest part of the head was still above the brim of the pelvis, it was not in my power to move it down from that position.

" Finding it was in vain to try this method longer, and being afraid lest the parts of the woman should be so bruised as to occasion a mortification, I withdrew the forceps, and resolved to use the last resource, and most disagreeable method, to save her life.

" As none of the futures presented, so as to enable me to make an opening through one of them, I was obliged, with a considerable force, to make a perforation with the scissars through one of the parietal bones, into which having introduced two of my fingers and a crotchet, I endeavoured to deliver; but not having a sufficient hold, I withdrew the instrument.

" Having introduced my hand at the right side of the pelvis, and the crotchet up betwixt my fingers and the child's head, I fixed the point on the occiput, which was so much ossified, that the instrument slipped, and could not penetrate so as to have a sufficient hold.

" Recollecting, that as the forehead was to the left side, a perforation would be much easier made at the fontanelle and sagittal

future, I introduced my fingers and curved crotchet, with the same precaution as before.

"The last vertebra of the loins jetted in so much, that I was obliged to move the instrument more towards the pubis; the point turning a little to one side, I moved it again close to the head, to prevent its hurting the patient.

"When I began to pull, the instrument began to slip, and the point again to alter, on which I advanced it much higher than before, and placed it right; then I began to extract first in a gentle manner until I found there was a firm hold; afterwards with much fatigue and force I delivered the head; although not before the frontal, parietal, and occipital bones were extracted. In this operation I was obliged to alter the crotchet several times, and the last fixing of it that succeeded was on the lower jaw.

"After resting a little, and not being able to deliver the body with my hands, I was obliged to take the assistance of the crotchet to diminish the bulk of the body also.

"Those present, as well as myself, were surprised to find that the woman recovered so well, considering the length of the labour, and the force that had been used before she could be delivered."

CASE XIV.—In this case delivery was effected with the crotchet. It is described in a letter from a correspondent of Dr. Smellie's.

"About a fortnight ago," says the writer, "a poor woman, come to her full time of a second child, by accident received a fall, which occasioned much uneasiness, but no symptoms of labour appeared till yesterday about eight o'clock in the morning, when the membranes broke, and the waters discharged in great quantity. At three in the afternoon the pains came on pretty fast; the midwife was sent for, and, as she says, finding things above her reach, sent for assistance.

"I found, on examining, a large arm in the passage, and the head, which I thought also very big, presenting with the forehead sideways, but turned a little towards the os pubis. The pains had entirely ceased; I put her in a right position to try to turn the child. With some little difficulty I introduced my hand to search for the feet, but found none near. My hand was very strongly pressed with a prodigious stricture and compression of the parts; however, I got to the groin, and found the legs and feet extended up in a straight line, so as I could not possibly reach them. I then returned to the head, and endeavoured to push it upwards; but the pressure was so great against me, that I found it impracticable. I told them the difficulty, which the midwife likewise affirmed; and, being at a little pause, we proposed calling a neighbouring surgeon. When he came, I told him every thing that had happened, and, after examining, concluded

that it was impossible to deliver by turning. We then agreed, as it was uncertain whether the child was dead or not, to try one blade of the forceps, which I passed up under the os pubis with some violence; but receiving no advantage from this, I gave him the same to hold, and introduced a crotchet, as I thought, into the eye, but it proved to be the mouth; and, at the time when he pressed the head from the os pubis, I extracted. My hold broke once or twice; till at last, I suppose, fixing in the maxilla inferior, we succeeded in the attempt. Some little flooding had appeared all the while.

"I must not forget to mention, that when we found the arm obstruct us so much, I twisted it off from the shoulder. No signs of life appeared in the child, but it was very large. The woman was afterwards as well or better than could be expected. The uterus, in the attempt to turn, felt as if it had lost its oval or round figure, and seemed as if it enclosed the fœtus like a sheath. I was about an hour and a half with her; the waters had been gone twelve or fourteen hours."

This gentleman asks, "Whether an attempt should not have been made immediately when the membranes broke?" The doctor's answer was much to the following purpose:

"No doubt, if you had been called in sooner, there would have been a greater probability that you would have turned the child, especially if all the waters did not come off at once; but if all the waters came off before the arm and head were locked close in the upper part of the pelvis to keep them up, the difficulty would have been as great at first as after. What you observe about the uterus is right; for when the child's head presents, and the breech and legs are extended up to the fundus, the uterus embraces the child like a long sheath, lying up and down in the abdomen; but when the child presents with any other part than the head, then it is more of a globular figure, and the child can be easier turned. I think you acted very right in first making a trial to turn, and when you could not succeed, to try if one blade of the forceps would assist, especially when the arm was down; though I seldom find that one blade does much service, or is so certain a method as when both are applied. No doubt also, as you could not deliver, and the arm was so big as to hinder your operating, it was necessary to take it off. You do not mention if you opened the head before you extracted with the crotchet; because this always lessens its bigness, and allows it to come along with greater ease: but perhaps that was unnecessary after the arm was out of the way; and it is also probable that both blades of the forceps could not be applied before that limb was taken off."

CASE XV.—Another of Dr. Smellie's correspondents was sent for to a woman who had been several hours in labour, and

although she had strong pains, the head still stopped at the upper part of the pelvis, and did not advance.

After putting his patient in a proper position, he introduced both blades of the forceps; and having slipped them up on each side of the child's head, and locked the handles together, he began to pull along with a considerable force. As the forehead lay to one side of the pelvis, he tried to turn it back to the sacrum; but it could not be moved, being so firmly fixed in the upper part of the pelvis.

This method not succeeding, he brought out the forceps, and resolved to turn the foetus, and deliver by extracting it by the feet. This being the woman's first child, he found the os externum so rigid that it required many efforts during every pain before it could be dilated: this being effected, he endeavoured to force with his hand the head of the child back into the uterus, so as to allow sufficient room to come at the feet.

After repeated trials, he could not with all his strength raise the head so as to pass his hand on one side of it; however, during these efforts, he found the last vertebra of the loins project more forward than common.

In consequence of this observation he desisted; fearing that if he should turn the child, it would be impossible to save it, on account of the great force it would require to bring the head through the narrow pelvis; exclusive of the risk the mother might run of a laceration of the uterus, before the feet could be brought down.

Having fatigued both the woman and himself, he took some respite; then opening the head, introduced the crotchet at the back part of the pelvis, and fixing it above the chin, as he perceived after the delivery, he tried to bring down the head; but by this purchase it was prevented, and forced against the upper part of the bones of the pubis.

Having withdrawn the instrument, he introduced it again along the side of the pelvis, and moving it gently to the pubis, fixed the point on the side of the occiput; there finding a firm hold, he insinuated two fingers of his other hand into the opening; then pulling and exerting great force with both hands, he at last delivered the head; and the body followed with little difficulty.

The patient was strong, and behaved with great courage all the time, though she complained of great pain in the parts: she was not lacerated in the least, and recovered much sooner and better than he expected.

He observes that the opening was through one of the bregmata; that his fingers, when introduced, were violently squeezed as the head came down, and desires an opinion of his manage-

ment of this, as well as of the other two cases just related which were more successful.

Dr. Smellie's answer to this account was to the following effect: He says,

"Your succeeding so well with the forceps in the two cases, where the heads of both children were come down to the lower part of the pelvis, I am afraid ran you into an error in trying them too soon in the last.

"You observe, that the head was high in the pelvis; that it was the woman's first child; that she had only been several hours instead of days in labour; was strong, and had vigorous pains; that although you supposed the pelvis was narrow, yet the head was brought along with the assistance of the crotchet; that the opening was small, and the body easily delivered.

"All these circumstances plainly shew, that you ought to have waited with patience to observe what these good pains would have done; for if the pelvis is narrow, it takes a long time before the head can be moulded to its form, and squeezed through it; more especially in a first child, where the os uteri, vagina, and external parts, are more rigid, and commonly take more time to dilate."

CASES XVI. and XVII.—In these two cases delivery was effected with the crotchet.

"In these," says the writer, "I found a good deal of difficulty. The one was when the arm presented without the labia, the shoulder was pretty far advanced, and the head and feet were firmly locked high in the pelvis. The woman had been some days in labour: I endeavoured all I could to get at the feet; but it was not in my power. After opening the chest and abdomen, I was obliged to bring away the child double, which was pretty easily done, as the child had been some time dead. The woman recovered very well.

"The other case was where the head was pretty far advanced into the hollow of the pelvis, but stuck at the shoulders above these bones. I did endeavour to deliver her with the forceps, having introduced them twice. They would not hold, which I thought was owing to the looseness of the bones of the skull. The child had been some time dead, and the woman long in labour, and in a low way. I delivered her with the crotchet. I told her friends I did not think she could live till she was delivered; but she lived for half an hour after."

CASE XVIII.—In this the head was prematurely opened by a practitioner. The writer describes the case to have happened at Sudbury, and states it to have been attended with the following circumstances. The woman was rather of a robust, strong constitution, large, straight, and seemingly quite well proportioned. She was in labour about six or seven hours; pains pretty severe,

but not very frequent, nor any signs of flooding; at which time she sent for one who was a mere pretender to midwifery. This man, more from impatience and rashness than any sort of necessity, fancied as soon as he came that something must be immediately done, and therefore proceeded to shew his dexterity, by making a wound with a common pair of scissars, as soon as he could possibly reach the unhappy babe, which came into the world a bleeding victim. It was apprehended that the child's face was to the mother's right ilium, and not very low down; consequently there could not be any material use in this opening; as no crotchet was employed, the contents were not evacuated, nor the opening made large enough for the futures to collapse much; the child being at last brought along with only the help of the fingers.

Dr Smellie's opinion, returned with the foetus, was as follows: "After examining the child, and considering your statement, I cannot help thinking, with you, that the gentleman has been a little too hasty in the operation. The woman had been safely delivered before, at this time was strong, had strong pains, only six hours in labour, the head when opened, coming along only with the assistance of the fingers in the opening. These strong pains, without the cerebrum being discharged, or the head squeezed into a longish form, shew plainly that they might have been sufficient for the delivery. The design of opening, is to let out the contents, that the head may be diminished in its bulk when too large to pass; and if this had been the case, such an operation should not be attempted, unless the woman's pains and strength began to fail. I had a case yesterday, the woman very big with the first child; the labour began at four in the morning; she had strong pains, and was safely delivered of a large child about eight at night. The head stuck in the pelvis, was squeezed to a great length, but by the assistance of the forceps was saved. However, no practitioner can judge of these matters, unless he had been present, because he can seldom rely on any accounts, and we always ought to judge on the charitable side, especially as none of us are perfect; and, if this gentleman has acted imprudently, it should be a lesson for you and me to act in a contrary manner, which will always in the end turn to our advantage."

The doctor adds, that "the foetus sent was as large as any he had seen; the opening at or near the vertex, and the head of a round globular figure; from which circumstances it appears that it had not been squeezed down into the pelvis, but lying above the brim; that the gentleman, either from great ignorance of his profession, or hurry of other business, which last is a most shocking reason, did certainly act the part of a bad accoucheur."

CASE XIX.—Dr. W. was called to a woman in labour of her

tenth child; the membranes had been broken, and all the waters discharged many hours. The head of the child was advanced to the lower part of the pelvis, the forehead to the pubis, and the funis umbilicalis without the external parts, in which the circulation had been obstructed by the pressure of the head: a certain proof that the child was dead.

Having failed in his attempt to deliver with the forceps, he could not with all his force extract the head, even after he had opened it, until several bones of the cranium were torn out with the crotchet.

Having delivered the head, he was obliged to fix the blunt hook in the arm-pit to bring down the shoulders, and even after that, it required great force to deliver the abdomen, which was much swelled.

CASE XX.—A practitioner was called to a woman who had formerly been delivered of four children, none of whom could be saved: she at this time had been long in labour.

On examining, he found the pelvis very narrow, the forehead, in place of the vertex, presented; the arm was also protruded through the labia. He waited a considerable time to try what the labour pains would do with the usual assistance of the hand, that the child, if still alive, might be saved.

As the woman grew gradually weaker, and the pains had no effect, he made a large opening in the cranium, and by dint of considerable force, extracted the same with the forceps.

CASE XXI.—The woman's pelvis being small, she had been delivered in a former labour with great difficulty; on which account, when the accoucheur attended at this time, he waited many hours in hopes that the pains would force the head lower down into the pelvis.

At last, the patient, all of a sudden, was taken with frequent faintings; her strength failing, and the pains growing weaker, he was afraid of delaying his assistance too long.

As the head was too high to attempt assisting with the forceps, the pelvis too small, and the woman too weak to venture turning, he perforated, and made a large opening in the cranium, from which issued a large quantity of bloody serum: after this discharge, he, with the assistance of the weak pains, and his fingers in the opening, delivered the woman; and no bad consequence ensued.

CASE XXII.—The same gentleman was called to a woman in labour of her first child. The midwife informed him that the membranes had been broken, and the patient in a lingering way for five days; but that she was now grown weak, and the pains, that had been strong, were entirely gone off.

As the head presented, he first tried to turn and deliver in that manner; then he used the forceps. Both these attempts failing,

he opened the head, introduced a crotchet with great caution, and brought out some of the bones of the cranium: at last he was obliged to introduce a curved crotchet on each side, which had the desired effect. After the delivery, on examining the child's body, it plainly appeared to have been dead many days; for the belly was of a livid colour, and the scarf skin stripped off in the handling.

CASE XXIII.—In this the face presented, and the child was delivered with the crotchet. It fell under the care of a gentleman in Essex.

The face of the child presented at the lower part of the pelvis, the forehead to the right ischium; and the membranes had been broken several hours before his arrival.

He first endeavoured to push up the head so as to bring the child footing; but it was so wedged in the bones that he could not move it. He next tried to deliver with the forceps, which also disappointed his expectations: at last he was driven to the dernier resource, that of diminishing the head.

As he could not perforate the bones of the face and forehead, to make an opening through these parts, he introduced a crotchet above the temporal bone; and, at length, after six hours' fatigue in trying these different ways, he delivered the patient.

As Dr. Smellie's correspondent mentions nothing of the strength of the woman, and the force of the pains, he takes it for granted, that he did not begin to operate till there was no hope of delivery by the efforts of nature, as the methods he used to effect delivery should never be attempted but in the last extremity.

What surprised him was, the great length of time the practitioner was at work, and the fatigue he underwent before he could deliver the patient, unless he desisted a long time between every trial, and only extracted in a slow manner, and at intervals.

CASE XXIV.—Mr. B. was called to a woman who had been extremely hearty during her pregnancy, was indulged in eating, even to excess, and was uncommonly big. When she was in labour, the midwife had promised a speedy delivery, from nine in the morning till ten at night.

"When called," says he, "I found the head presenting, and imagined in a good situation to assist with the forceps; but after introducing them, I could not, with all my strength, move or deliver the head, neither could I push up my hand into the uterus to deliver the child by the feet.

"I next tried to extract the head with a crotchet; this proved unsuccessful also: at last, after four hours working to no purpose, and a flooding coming on, I perforated the skull, and delivered the child, and the woman recovered."

This gentleman begs Dr. Smellie's opinion, whether waiting in such a case would not have been dangerous for the woman. The child, he says, was very large, and weighed sixteen pounds. The doctor's answer was in these terms :

" After examining all the three cases you sent me, I doubt your success in them has been the occasion of your trusting too much to good fortune in the fourth, where you were obliged to deliver with the crotchet, which I am afraid proceeded from trying both to deliver with the forceps, and to turn the child, before it was absolutely necessary. You do not describe the state of your patient when you were called. If she was much weakened and exhausted from the length of the labour, the pains lingering, and no hopes of delivery from them, you were in the right to try the two first methods to save the child, and after these, if the woman was in absolute danger of her life, you are excusable for having recourse to the last expedient.

" When you found the head would not come along with the assistance of the crotchet, you should have opened it immediately, that the contents might be discharged, and the head diminished. This would have saved the time and fatigue you mention.

" I hope this unsuccessful case will be a caution against using the forceps too soon. Attempts to turn the child with great force, when the head is engaged in the pelvis, and all the waters are discharged from the uterus, frequently loosen the placenta, and bring on a flooding, such as you describe."

CASE XXV.—Mr. G. L. was called to a woman of fifty years of age, in labour of her first child, with a pelvis excessively narrow.

The patient had been long in labour, was very weak, and the pains had abated. " After stretching the external parts," says he, " I could not introduce my hand through the bones of the pelvis, however, in this trial, I felt, with my fingers, that the head presented.

" On opening the head, more than a quart of foetid serum was discharged. I then introduced two fingers, and along them a crotchet, and got a firm hold, with that instrument, on the os petrosum.

" After having endeavoured with all my force to extract the head with both hands, one at the instrument, and the fingers of my other in the opening, I could not move it, until I introduced another crotchet on the opposite part of the cranium. By pulling at both these instruments, some of the bones were loosened, and came away with the crotchets.

" I then, with the scissars, cut in pieces the whole of the cranium, which, with two or three fingers, I extracted, piece by piece; afterwards, by the assistance of the blunt-hook, I brought down the shoulder and separated it from the body. I was obliged, in the same manner, to extract every part of the child."

CASE XXVI.—The gentleman who relates this case was called to a poor woman in St. Giles's, at eight o'clock at night, and was informed that she had been several days in labour, and was seemingly much exhausted.

A young and inexperienced accoucheur who attended, as the hairy scalp was tumefied, imagined that the breech presented; but, upon examination, it was found to be the head with one of the hands; and the pelvis of the woman was very narrow.

"She told me," says the relater of this case, "that she had been delivered twice before of dead children. Upon this information, and as she still had strength, and frequent small pains, and complained that she had enjoyed no sleep for two nights before, I ordered her an opiate.

"This precaution being taken, we left her to the care of the midwife, desiring the patient might be kept as still as possible, in hope she might get some rest.

"We were again called early next morning, and found her quite worn out with the pains and want of sleep, and the head of the foetus not in the least advanced.

"Being afraid, if I delayed the delivery longer, that a mortification might soon invade the parts of the woman, from the continued pressure of the child's head, I opened this last with the scissars, and enlarged the perforation. This being done, I introduced the curved crotchet within the skull, mounted with the sheath, to prevent the sharp point's hurting the patient, if it should slip in pulling.

"Having destroyed the structure of the cerebrum and cerebellum, that they might pass off, so as to diminish the head, and finding I had a good hold in the inside with that instrument, I pulled with one hand at that, and with the fingers of the other in the opening, by which means I extracted both the parietal bones; but, although I exerted all my strength, and a great part of the contents were discharged, yet the head was not moved an inch lower.

"Failing in the above attempt, and finding I could not introduce my fingers, to direct the sharp crotchet on the outside of the head, on account of the narrow pelvis, and the arm filling up the vagina, I was obliged to twist off the limb from the shoulder. This was pretty easily effected, as the child had been for some time dead, which plainly appeared from the skin stripping off from that member. After removing the arm, I even then with much difficulty introduced my fingers, and along with them the crotchet, and got the point fixed above the chin; then pulling with great force, and with both hands, in the same manner as before, the head began to move down within the projection of the distorted bones, and I continued pulling it, till it was entirely delivered.

"The body followed without the use of the crotchet, but not without using great force. The distance, so far as I could judge, did not exceed two inches and a half from the jetting forwards of the upper part of the sacrum to the pubis. Although the woman had suffered so much from the length of the labour, as well as from the great force used at the delivery, yet she recovered better than could have been expected."

CASE XXVII.—A letter from a gentleman near London to Dr. Smellie, contains the following history of a laborious case, in which he honestly owns he prematurely tried to deliver with the forceps; but the head of the fœtus being too high in a narrow pelvis, that method did not succeed. He then administered an opiate, to procure some rest, and allay the violence of her pains, as she had been much fatigued. Being called on other business at some distance, he did not see her before the following day, when he found her much exhausted by the labour; and, being again called to another patient, he was afraid of her dying, if he did not deliver the child before he went away. As the head was not advanced so as to promise any success from the forceps, he was obliged to use the disagreeable method of opening the cranium, through a large tumor of the hairy scalp; after which, with the assistance of the blunt crotchet, he extracted the child, but with greater difficulty than he expected, as it was very large.

He takes occasion to lament the condition of poor women who live at a distance from assistance, in the country, and the dismal situation of practitioners, who are seldom called in time, or, even when properly called, are prevented, by a hurry of other business, from giving due attendance. This is too frequently the occasion of tempting them to operate, before it is absolutely necessary; on which account, he says, he is resolved to attend none but patients whom he can deliberately assist, and leave such cruel methods to more obdurate practitioners.

CASE XXVIII.—In the Medical Essays of Edinburgh, vol. III. art. 19, is the following account of the fides of the os uteri grown together in a woman with child, by Dr. Simson.

"A woman, forty years of age," says the doctor, "obviously narrow between the ossa pubis and os sacrum, had been four days in severe labour of her first child, when I was called to assist her: the child appearing to have been dead for some time, I opened its head, and extracted it, but with great difficulty; its shoulders and haunches being too large to pass in the straitened passage between the bones. During some days after her delivery, she passed great many small rugged stones by the urethra, and, at length, after her urine had been stopped some time, her husband drew out of the urethra a large piece of thick membranous substance, three inches in length, and, in some parts, two inches broad; one side of it was covered with a crust of small sharp stones, the other

sides was inflamed and bloody, which made me judge it to be part of the coats of the bladder separated; and I was confirmed in this opinion, by introducing a catheter into the bladder: for, whenever it touched certain parts of the sides of the bladder, blood came with the urine. The patient continued a long time with a plentiful suppuration about the pudenda; but we did not suspect that the pus came from the internal parts, but only from the exterior, which had been somewhat lacerated. About three months after delivery she was again with child, and took her pains after the ordinary period. She continued two days in hard labour before I saw her. The midwife then informed me, that the inner orifice had yielded nothing; I left her half a day, and things remaining in the same way at my return, I examined her condition, and found, that the os tincæ had not only not yielded, but that the sides of it were grown together, without any vestige of a passage, whereupon I asked the assistance of another physician, and Dr. Haddow being called, was, as well as the midwife, sensible of the case being such as I judged it to be, wherefore we agreed to make an incision into the os uteri; but we were first obliged to dilate the vagina sufficiently, that we might operate more securely. We had no speculum matricis, and therefore endeavoured to supply it by some other instruments. We tried to make the dilatation with a pair of long broad-bladed forceps, but they neither had strength to dilate sufficiently, nor did they keep the vagina equally open. After this we caused two pieces of wood, each three inches long and two and a half broad, to be made concave on one side, and convex on the other, and of no more thickness than we thought would be sufficient to be a strong enough pressure by the necessary dilatation. When these were finely polished and smeared with grease, I introduced them into the vagina, with the concave faces to each other, then sliding in the legs of a speculum oris between them, and turning its screw, I separated the pieces of wood so far as we could see distinctly the cicatrix of the grown-together parts, and could have easy access to divide them, which I did, by an incision at least half an inch deep, before I pierced through the substance of this part of the womb; then immediately introducing my finger at this wound, I touched the head of the child, and felt the whole circumference of the passage hard, like a cartilage, which yielded nothing to several throws she had after the incision, so that I was obliged to guide a narrow-bladed scalpel with my finger, to make several incisions into this cartilaginous ring; in doing this, there was not the least appearance of blood, and the patient had no trouble, except what the dilatation of the vagina gave her. The labour continuing, the passage dilated a little, but not so much as to give any hopes of its allowing the child's head to pass, notwithstanding the bones of the cranium were overlapped; and there-

fore I was obliged to bring away the child, as I had done the former. In this birth, there was no liquid with the child, nor did any blood follow it; it was quite supple, and had a white chalky crust over its whole body; so that we were convinced it had been dead some time. The want of waters was some surprise, till I recollected, that, in the time of labour, she told us they were passing, at which time I had the curiosity to make strict observation, and found what she called the waters passed by the urethra, which opened externally by three different orifices; this, with her having lost such a portion of the bladder formerly, and her being subject to the gravel, gave me ground to think there was some communication between these passages and the cavity of the womb above the os tincæ, which had allowed the waters to be evacuated. I was the more inclined to entertain this supposition, because frequent instances have been observed of stones making their way through the neighbouring parts, as happened to a boy in this neighbourhood, who passed a very large stone, which had lodged long in the bladder, by the anus, by which the urine had its course for some time after.

“ My patient, immediately after being put to bed, was seized with a pleuritic pain, very high fever, and difficult breathing; which coming on so soon after her being fatigued several days with hard labour, during which she slept none, but drank much of every thing in her way, appeared to me rather the cause of her death in twenty-four hours after, than any consequence of the incision I had made, for she never complained of any uneasiness in those parts, nor had any hæmorrhage. Notwithstanding all the sollicitations I could use with her relations, I could not prevail with them to allow me to open her body.”

SECT. VII. *Of the VECTIS, and its APPLICATION in MIDWIFERY.*

The vectis, used in the practice of midwifery by some eminent accoucheurs, has not yet been noticed. It is an instrument consisting of one blade, slightly curved, and a handle; somewhat larger, but similar in form to one of the blades of the forceps. We shall lay before the reader Dr. Denman's excellent observations on this instrument, from the second volume of his Introduction to the Practice of Midwifery.

1. “ The true origin of this instrument,” says the doctor, “ or time when it was first discovered, is not known; but before any accounts of the vectis were published, some difficult cases were recorded, in which women had been delivered with one blade of the forceps, which might then be well considered as a vectis, though not called by that name. But when only one blade of

the forceps had been used, the operation was mentioned as something extraordinary, to shew perhaps the judgment, skill, or good fortune of the person who performed it, and not as leading to the use of a particular instrument, or to a rule of practice. It is probable, that the instrument used by the Chamberlens in the last century was the vectis; but this is conjecture, for, after much enquiry, though scarcely credible, no person has yet been able to discover, that any of them left either a pattern or description of the instrument which they used. In the second volume of Heister's Surgery there is a delineation of a true vectis, recommended to him in very strong terms by Palfyn, a surgeon of eminence at Ghent; but neither this instrument nor its description engaged much attention, nor was the vectis generally known in this country before the year 1750. For though it had been used before that time by Rhonhuysen, a surgeon at Amsterdam, after whose name it has been since called, it was reserved by him with great secrecy, to his own credit and advantage; and, after his death, it became the property of his only daughter, from whom it was purchased by De Bruyn, an eminent surgeon of the same place. It appears that De Bruyn concealed the secret with as much caution as Rhonhuysen; or that he instructed students in the use of the vectis at a considerable price, and with an obligation not to divulge to others what he taught them; which must have raised great suspicion of imposture on his part, and of credulity in those whom he taught. The names of other gentlemen who changed or improved the instrument soon became known; and, annexed to a paper written on this subject by the celebrated professor Camper, in the fifteenth volume of the Memoirs of the Royal Academy of Surgery, is a plate representing the vectes used by Rhonhuysen, Boom, and Tissing.

"The advantages arising from the use of the vectis in the hands of De Bruyn, ostentatiously urged, appearing to be very great, Vischer and Vander Pol, two physicians at Amsterdam, from motives of pure benevolence, purchased the secret from De Bruyn, in the year 1753, and immediately published a description of the instrument, with directions for using it; but none of the papers printed on this subject in the Dutch language have ever been translated into our own. While the vectis remained a secret, the reports of the benefits obtained by it were probably much exaggerated, especially those of De Bruyn, though Van Swieten says he was an honest man; but, when it was divulged, and the positive and comparative merits of the vectis strictly examined, it retained its credit and estimation in the opinion of many competent judges in different parts of Europe.

"When the vectis was very much used, and highly esteemed, at Amsterdam, as an invaluable improvement in the practice of midwifery, the forceps was the favourite instrument in this coun-

try; especially as altered by Smellie, who was then the principal teacher of the art in London. But the chief practice in this city was successively in the hands of Drs. Bamber, Griffith, Middleton, Nesbit, and Cole, some, if not all of whom, except Dr. Bamber, whose forceps I have seen, preferred the vectis to the forceps. To those gentlemen succeeded Dr. John Wathen, a man of great ingenuity, and most pleasing manners, who altered the form and reduced the size of the vectis, and frequently used it with a dexterity that has astonished me. In the year 1757, that most excellent charity for delivering poor women at their own habitations was established; and Dr. John Ford was the first physician appointed to conduct it. On every occasion which required instruments of this kind, Dr. Ford used the vectis; and his coadjutors and successors, Drs. Cooper, Cogan, Douglas, Sims, Dennison, Squire, and Croft, with many others, have followed his example. From the deserved reputation of these gentlemen, who have at all times expressed their approbation of the vectis in preference to the forceps, many have been induced to try it, and the general opinion of its utility has increased. At the present time, all who are engaged in the practice of midwifery would consider themselves as deficient, if they were not acquainted with the structure and manner of using the vectis; some who formerly preferred and used the forceps, have relinquished the use of this instrument for the vectis; and others who, from education or habit, continue to use the forceps, are very willing to allow the equal, if not superior, utility of the vectis."

2. In a subsequent section Dr. Denman describes *the different kinds of vectes* in the following terms:

"The first vectis," says he, "of which we had any knowledge in this country, was similar to that of Palfyn, before mentioned. The instrument purchased by Vischer and Vander Pol, which was made public in a pamphlet written in the Dutch language, is different from that of Palfyn. In the account given by Camper, there appears to be some difference in the form, length, matter, and degree of curvature of the vectes used by De Bruyn, Booms, and Titting. But if the powers of the instrument were preserved, and the general principle of using it followed, it is probable that all those who preferred the vectis thought themselves at liberty to alter its form, or to vary its dimensions, making the instrument, by such alterations, suitable to their own ideas of the properties required.

"When the vectis was first known in this country, that described by Heister was preferred to those recommended by the surgeons at Amsterdam. The vectis used by Dr. Cole was like one blade of the forceps, somewhat lengthened and enlarged. That of Dr. Griffith was of the same kind, with a hinge between the handle and blade; and that of Dr. Wathen was not unlike

Palfyn's, but with a flat handle, and a hook at the extremity of the handle, which prevented its slipping through the hand, and might be occasionally used as a crotchet. Many other changes have been made in the construction of the instrument, but the vectis now generally used is of the following dimensions :

" The whole length of the instrument, before it is curved, is twelve inches and a half.

" The length of the blade, before it is curved, is seven inches and a half.

" The length of the blade, when curved, is six inches and a half.

" The widest part of the blade is one inch and three quarters.

" The weight of the vectis is six ounces and a half.

" The handle is fixed in wood.

" From this description, any person acquainted with the forceps could find no difficulty in forming a just idea of the vectis, or an artist in making it. It appears also, that a single blade of the forceps might, in many cases, be used not inconveniently, instead of any other vectis, and would generally answer the purpose without the trouble of introducing the second blade, as I have often experienced before I was acquainted with the vectis.

" With respect to the part of the blade of the vectis which ought to be curved, and the degree of curvature, there has been some difference of opinion ; but this must relate either to the ease of introducing, or the advantage of acting. With a small degree of curvature diffused through the blade, the instrument may be most easily introduced, and it is most suitable to the form of the head, nor can the degree of curvature required, on any principle, be very great. But if, together with the power of the lever, we aim at acquiring much extracting force, the curvature should be somewhat increased towards the extremity ; because the two centres, on which the force used would rest, would be at those parts of the head on which the instrument might bear, and the part on which it would rest, whether the sides of the pelvis or the hand of the operator.

" For rendering the introduction of the instrument more easy, and for preventing all the inconveniencies which might arise from the difference of curvature, Dr. Aitkin of Edinburgh contrived a vectis, which he has fancifully called the *living lever*. When this is at rest it is quite straight ; but while it is introducing, by turning a screw in the handle, the blade is jointed in such a manner as to bend gradually forwards as the instrument is advanced, so that the extremity of the blade is always kept close to the head of the child, of whatever dimensions that may be. There is much ingenuity in the contrivance ; but of the effect in practice I cannot speak, having never tried this instrument, not wishing for one more perfect than that in ordinary use. But a gentleman

informed me, that in a trial he made, the chain, on which the mechanism chiefly depends, broke, and he was obliged to finish the operation with a common vectis; so that in all probability the common vectes are actually preferable to any of the complex kinds.

“ To lessen the pressure made by the instrument, when in action, upon the parts of the mother, on which it might bear, some person contrived two holes on a part of the blade, near the handle, through which a strong riband or tape was to be passed, which being afterwards tied and pulled firmly, when the instrument was acted with, was supposed to confine it firmly to the head of the child, and prevent or lessen the pressure which might otherwise be made upon the parts of the mother : but it appears that the same end may be answered better by an intelligent and dextrous management of the instrument, than by this contrivance.”

3. Dr. Denman next observes on the comparison of the vectis with the forceps. He says, “ The general principle of practice, that the use of no instrument is to be allowed except in cases of absolute necessity, ought not to be infringed because we entertain a high opinion of any instrument, or because we may have acquired dexterity in using it; for such reasons would be indefensible, and any conduct founded upon them would be highly culpable. That principle, founded in common sense as well as medical knowledge, and confirmed by daily experience, must be held inviolable. The real value of any instrument will be shewn by its efficacy to answer the purpose for which it may be used, and by the safety and convenience with which it can be managed, when its use becomes absolutely necessary.

“ There has been much verbal dispute among those who vindicated the superiority of the vectis to the forceps, and those who maintained the long established credit of the forceps against the encroachments of the vectis : but the comparison between the two instruments has never been brought fairly to an issue, which might have been done by a discussion of the two following questions :

“ Is it possible to deliver a woman safely with the forceps, in any case not manageable with the vectis ?

“ Is it possible to deliver a woman safely with the vectis, in any case not manageable with the forceps ?

“ We may take it for granted, and I believe it is true, that in far the greater number of cases which occur in practice, either of these instruments may be used indiscriminately, with equal safety, advantage, and ease, allowing for the dexterity which may have been acquired by the habit of using either instrument. It is but lately that those who prefer the forceps have asserted, that they could deliver a woman in any case of difficulty not manageable with the vectis ; but, as far as my experience enables me to judge, ~~for~~ a claim in favour of the forceps cannot be supported. The

experience with the instrument, I dare not attempt to form a precise rule for the extent of our conduct with the vectis, that is, how high we may venture to introduce it, or with what degree of force we may use it. But when, without regard to the facility with which the vectis may be introduced, or any other consideration except the necessity of the case, under the circumstances before stated, we have determined upon using this instrument, the patient being placed in the same situation, and every thing prepared as when the forceps are to be used, the operation is to be performed in the following manner :

“ Pass two fingers, or the forefinger of the right hand, to the ear of the child, and introducing the vectis between the fingers and the head of the child, conduct it slowly forwards till the point of the vectis reaches the ear, wherever that may be. Then advancing the instrument as if it were a blade of the forceps, carry it on till, according to your judgment, the extremity of the blade may reach as far, or a very little beyond, the chin of the child, when the line of the head, on which the instrument rests, will be in a straight direction from the vertex, over the ear, to the chin of the child ; and this is the most favourable position in which it can be placed. Then grasping the handle of the instrument firmly in the right hand, wait for the accession of a pain, during the continuance of which, raise the handle of the instrument gently but firmly towards the pubes, at the same time exerting a small degree of extracting force. When the pain ceases, let the instrument rest ; and when it returns, repeat the same kind of action ; and every time of acting endeavour to lessen the pressure on the soft parts of the mother, with the two fingers, or the inferior side of the palm of the left hand placed in such a manner as to form, in some sort, a cushion on which the instrument may play, or be supported. By a repetition of this action during the continuance of the pains, the head of the child will soon be perceived to descend, and the face to turn gradually towards the hollow of the sacrum. But should the very moderate force we have recommended be found insufficient to bring down the head of the child, it must be gradually and cautiously increased, till it is sufficient to answer the purpose ; and this may be done consistently with the safety both of the mother and child. When the vertex begins to fill and protrude the external parts, it is probable there may be no farther occasion to act with the instrument ; or, if further action be required, it must be extremely gentle, taking all possible care, by turning the handle towards the ischia or side of the pelvis, by supporting the perinæum, and by slow proceeding, to guard against a laceration of the parts, as was before advised.

“ During the operation, the vectis being confined to that part of the head where it was originally placed, must, as the head descends, necessarily change its relative situation to the mother,

and be gradually turned from the pubes to the side of the pelvis, as was remarked of the handles of the forceps.

"It is also to be observed, though from the name of the *vectis* it might be supposed we had the power of acting with it as a lever only, that it will be found to possess a considerable degree of extracting force, even when the curvature is but small; and that we are able, at the time of using it, to direct with convenience, and in various ways, the head of the child as it descends.

"In using the *vectis* some have recommended the application of it towards the hollow of the sacrum, and spoken of the advantages of this mode of application. But I have persuaded myself, that the opinion which could lead to this practice was erroneous, that the instrument would then be worked with less efficacy, and there would be a greater hazard of doing mischief to the mother and child.

"It may lastly be observed, that some gentlemen have, by frequent practice, acquired such wonderful dexterity in the use of the *vectis*, as to finish the operation of extracting the head of a child with one single action of the instrument. But being ever afraid of sacrificing safety to dexterity, I only pretend to describe a method of using this instrument securely and efficaciously; and must therefore be excused from commenting further on all that has been unadvisedly objected against, or advanced for, the use of the *vectis*, under various circumstances."

Dr. Denman closes these admirable remarks on an instrument certainly not heretofore appreciated as it ought, by referring the reader to a full and accurate history of the *vectis*, given in "*Observations on Human and Comparative Parturition*," by Dr. Bland.

CHAP. III. OF PRETERNATURAL LABOUR.

IN whatever manner the child presents when the body is delivered before the head, the birth is accounted preternatural.

Preternatural labours may be referred to one of the four following classes.

I. When one or both feet, knees, or the breech, present.

II. When the child lies across in a rounded or oval form, with the arm, shoulder, side, back, or belly, presenting.

III. When one or both of the upper extremities present, the child lying in the form of a sheath, the feet towards the fundus uteri, the waters evacuated, and the uterus strongly contracted round the body of the child.

IV. Lastly, premature or flooding cases, or others in which it may be necessary to force the delivery, either previous to the rupture of the membranes, or quickly after it.

The causes of cross labours most commonly assigned by authors are, The obliquity of the uterus; circumvolutions of the funis umbilicalis round the child's body; the shortness of the funis, or attachment of the placenta towards the fundus uteri; shocks affecting the mother when pregnant, &c. The position of the fœtus may also be influenced by its own motion and stirrings, by the particular form and bulk of its body, by the manner of stretching of the uterus, by the quantity of liquor amnii, and by many other circumstances.

The symptoms that indicate an unfavourable position of the child, before it can be discovered by the touch, are very uncertain and fallacious: a cross birth may, however, be suspected:

1st. If the pains be more slack and trifling than ordinary.

2dly. If the membranes be protruded in a long form like a gut, or the finger of a glove.

3dly. If no part of the child can be discovered when the uterine orifice is considerably opened.

4thly. If the presenting part through the membranes be smaller, feels lighter, and gives less resistance than the bulky ponderous head.

5thly. Lastly, after the rupture of the membranes, if the meconium of the child be passed along with the waters, it is a sign that the breech presents, or that the child is dead.

Preternatural labours are difficult or hazardous, according to,

1. The form of the pelvis, and general health and constitution of the woman.

2. The bulk of the child, and its manner of presenting.

3. The time the waters have been evacuated, and the uterus contracted round the body of the child.

4. When complicated with plurality of children; the prolapsus of the funis umbilicalis; the limbs of the child entangled in the chord; profuse and violent floodings, from the attachment of the placenta towards the cervix uteri, &c.

Turning is often laborious, and always dangerous in proportion to the force used in searching for and bringing down the feet; though, in general, the difficulty and hazard are not so great, as in many cases strictly called laborious, when the head presents; the treatment of preternatural labours being better known, and for the most part easier put in practice.

Each class of the general division of cross labours includes a variety of different cases. By considering a few of every class, a general idea of the whole will be formed.

CLASS I.

CASE I.—The simplest and easiest case is the Agrippan posture, when the child presents with the feet.

The foot is to be distinguished from the hand, first, by the

weight and resistance it gives to the touch ; secondly, by the shortness of the toes ; thirdly, by the projecting heel.

When the feet present in the passage, the labour should be allowed to go on as if natural. If the child be of an ordinary size, the woman in health, the parts well proportioned, in the way of assistance nothing further seems necessary but the application of a warm cloth round the body of the child, which must be properly supported till it advances as far as the pains are able to force it. If the size be ordinary, or rather small, it will sometimes make the mechanical turns, and be entirely pushed along by the force of the natural pains, but it generally stops at the shoulders. after the breech protrudes without the os externum, where the resistance is so great that the accoucheur's assistance becomes requisite.

In this case, the patient must be placed on her back, properly supported ; the hand of the accoucheur must be cautiously introduced : the parts of the woman must be gently stretched ; the feet of the child must be laid hold of, and brought as low in the vagina as possible ; a soft warm cloth must be wrapped round them, and the extraction must be performed in a slow cautious manner, making large motions in a circular or lateral direction, resting from time to time, if the pains are gone ; and if not, always waiting for the natural efforts. When advanced as far as the breech, the body, if not already in a proper direction, must be pushed up, and gently turned with the face towards the mother's back : and to make sure that the face turns with the body, or to prevent the chin, vertex, or shoulders, from catching on the pubes, or angle of the sacrum, an extraordinary quarter-turn more must be made : this must be reversed previous to the extraction ; and the difficulty arising from the obstruction of the shoulders, must be removed in the following manner : While the breast and legs of the child are supported over the palm and fore-arm of the one hand of the accoucheur, which he draws towards one side, he must introduce two fingers of the other hand at the opposite side into the vagina, over the back-part of the shoulder, as far as the elbow, and endeavour in the most gentle manner to bring down the arm, always remembering in his movements to humour the natural motions of the joint : he must then shift hands, when the other arm is to be relieved in the same manner : both arms being brought down, the woman must now rest a little, when a pain or two generally follows, and the head is also forced along. But should the woman be much exhausted, and if the head does not quickly advance, the child may be lost from delay. The extraction of the head in preternatural labours is often the most difficult and the most dangerous part of the delivery ; the cause of resistance, when it does not advance, is chiefly owing to its confinement between the angle of the sacrum and pubes, when the bulky part of the head is detained at the brim ; whether the resistance be here or towards the inferior aperture of the pelvis, if the head does

not advance in a pain or two, the extraction must be made in this manner: While the right hand of the accoucheur supports the body of the child below, with two fingers pressing on either shoulder, the left hand and fingers must in the same manner be placed over the back of the neck, and pulling gently in the direction from pubes to sacrum, he must thus endeavour to bring it along: but, should the pelvis be narrow, or the child's head of a large size, or the face be laterally or anteriorly placed in the pelvis, or, what rarely happens, the os uteri contracted round the neck of the child; in either of these cases the accoucheur will sometimes meet with the utmost difficulty. When the above method therefore fails, he must introduce two fingers of the right-hand into the child's mouth, while those of the left-hand are expanded over the shoulders, as already directed; and in this way he must endeavour to relieve it, pulling from pubes to sacrum, alternately raising and depressing the head till it advances low down, so that the face descends from the hollow of the sacrum, when the accoucheur must rise from his seat, and bring the hind-head from the pubes with a half-round turn, imitating that of a natural labour.

If the position be unfavourable, the face, if possible, should be turned to the sacrum, by pushing up the head, or by pushing back the chin: If the contraction of the uterus is the cause of resistance, which rarely occurs, it must be gently stretched with the fingers. Or if the difficulty arises from circumvolution of the chord round the legs, thighs, body, or neck of the child, these must be disengaged in the easiest manner possible; it is rarely necessary to divide the funis on this account.

Should every method fail in bringing down the head, the delivery must be effected by means of the forceps, cautiously passed over the ears, with the handles under the child's body, in a direction downwards towards the perinæum. If the pelvis be very narrow, or the head of a large size, it must be opened by pushing the scissars through the occipital bone, so that the contents of the cranium may be evacuated, and the extraction made by means of the forceps, blunt-hook, or crotchet. But if the head, by the efforts to extract it, be actually severed from the body, and left behind in the uterus, an accident which sometimes occurs, it must be delivered by inclosing it in the forceps, while secured from rolling by pressing externally on the abdomen. If the forceps cannot be applied, the cranium must be opened, the texture of the brain destroyed, and the extraction performed by the fingers of the accoucheur, by the blunt-hook, or by the crotchet. If the under-jaw remains, the head may be effectually secured till locked in the forceps, or till its bulk be diminished, by introducing a finger into the mouth, thrusting it through the jaw under the chin, drawing it down, and passing a ligature through the perforation.

In cases where the child has been long dead, should the belly or

thorax be distended with air or water, and prove the cause of obstruction, the contents must be evacuated by opening with the scissars, or tearing with the crotchet; and, in general, where difficulties occur, the delivery must be accomplished in that manner the circumstances of the case will best admit of.

CASE II.—When instead of two, one foot only falls into the vagina, the other is sometimes detained by catching on the pubes, and, if easily come at, should be brought down, always remembering to humour the natural motion of the joint; but, should the leg be folded up along the child's body, the attempt is sometimes both difficult and dangerous, and ought not to be persisted in, as the breech will either be forced down by the assistance of natural pains, or by gently pulling by one leg only.

CASE III.—When one or both knees present, the delivery must be conducted in the same manner with that of the feet.

CASE IV.—When the feet offer along with the breech, this last must be pushed up, while the former are secured and brought down, till it be reduced to a footling case, and otherwise managed as above.

CASE V.—The breech may present with the fore-parts to the mother.

- 1st, Anteriorly,
- 2dly, Laterally; or,
- 3dly, Posteriorly.

Sometimes the breech may be discovered, previous to the rupture of the membranes; but afterwards with more certainty, by the meconium of the child passed with the waters, and by the touch.

In whatever manner the breech presents, the delivery should be submitted to nature, till the child be advanced as far as the thorax, when the feet are to be brought down and laid hold of, the child, if necessary, pushed up, the mechanical turns effected, and the delivery otherwise conducted as in a footling case. There is much less hazard in general, agreeable to an old observation of Mauriceau, in allowing the child to advance double, than in precipitating the extraction by pushing up to bring down the feet before the parts have been sufficiently dilated; a practice difficult and troublesome to the operator; painful, and sometimes dangerous, to the mother; and by which the child is exposed to the risk of strangulation, from the retention of the head after the delivery of the body. If the child be small, though doubled, it will easily pass in that direction; if large, though the labour be painful, the natural throes are less violent and less dangerous than the preposterous help of the accoucheur: If the child thus advances naturally, it will be less exposed to suffer; if it does not advance, the parts of the mother will be prepared for the accoucheur to pass his hand into the pelvis, to raise up the breech, to bring down one or both feet, and deliver as above.

Weakness in the mother; floodings, and convulsions; a very large, child, or narrow pelvis; the prolapsus of the funis, or its compression between the thighs of the child, or between the child and pelvis, by which its life is endangered, if the chord cannot be reduced above the presenting part; are the only exceptions to the general rule of treating the breech as a natural labour.

The practice of helping forward the breech, by passing the blunt-hook under the ham, is now entirely laid aside: this can never be done with safety, till the breech be so low advanced that the hand of the accoucheur can be used, which may be employed with more advantage as well as safety.

CLASS II.

In the former class of preternatural labours, it is advisable to trust to nature in many cases, as the birth will often be accomplished without manual assistance: but when the child lies across, no force of pain can make it advance in that position; and, without proper assistance, both the mother and child would perish.

If the accoucheur has the management of the labour from the beginning, the child may be turned, in the worst position, without difficulty; but when the waters have been for some time evacuated, and the uterus strongly contracted, turning is laborious to the operator, painful and dangerous to the mother. In such cases, the ancients endeavoured to make the head present; but, from its bulk, they often failed, and the attempt was often attended with fatal consequences. The method of delivering by the feet is the most important modern improvement in the practice of midwifery; an improvement to which many thousands owe their lives.

When the child lies in a transverse position, the accoucheur must insinuate his hand through the vagina into the uterus in the gentlest manner, search for the feet, bring them down with the utmost caution, and finish the delivery as in footling-cases. To effect this, the following rules should be observed:

1. The patient must be placed in a convenient posture, that the operator may be able to employ either hand, as the various circumstances of the case may require.
2. Though the best posture, in general, is laying the woman on her back, it will be sometimes necessary to turn her to her side; and, in these cases, where the abdomen is pendulous, where it is difficult to reach the feet, or where they lie towards the fundus uteri, the woman should be placed on her knees and elbows.
3. An exact knowledge of the true position of the child, and of the structure and state of the parts, should be acquired, before attempting to make the delivery.
4. The orifice of the uterus should be enlarged, so as freely to admit the hand; and the stronger pains should be abated, before any attempt be made to deliver.

5. Should the waters be drained off, the parts dry and rigid, and the uterus contracted round the child, warm oil must be injected into the uterus, otherwise its rupture may be endangered.

6. In passing the hand into the uterus, this must be done in the gentlest manner; the parts must be well lubricated with butter or pomatum; the line of the pelvis must be attended to; the efforts of the operator must be slow and gradual; and thus the utmost rigidity in the soft parts will, in time, be overcome.

7. The hand must be introduced only during the remission of pain; when pain comes, the accoucheur must always rest; otherwise he may push his hand, or the foetus, through the body of the uterus.

8. In pushing up, to come at the feet, this must never be done with the points of the fingers, nor with the hand clenched, but with the palm of the hand, or the broad expanded fingers, and always during the remission of pain, and the latter should also be observed in bringing down the legs; but, in making the extraction of the body, the efforts of the operator should always co-operate with those of nature.

9. The hand should, if possible, be introduced along the anterior parts of the child; and both feet, if easily come at, should be laid hold of.

10. In turning, the accoucheur should never consider the child as dead, nor allow himself to be deceived by symptoms doubtful and fallacious; the child is sometimes born alive when he would least of all expect it; therefore, in pushing up, bringing down the legs, or extracting the body, it should be handled with the greatest delicacy.

11. When the hand is within the pelvis, it should not always be moved in the line of the umbilicus, but rather towards one side of the spine, by which more room is gained, and the prominent angle of the sacrum avoided.

12. The hand should be passed as far as the middle of the child's body, before attempting to search for the feet; or before attempting to break the membranes, should these remain entire, till the aperture of the uterus will admit of the hand.

13. If the hand cannot pass the presenting part of the child to come at the feet, instead of violently pushing back, the part should be as it were lifted up in the pelvis, and moved towards a side; by which means difficulties may be surmounted, and great danger often prevented.

By attending carefully to the above rules, laceration of the uterus, floodings, convulsions, inflammations, and their consequences, may be prevented; accidents that frequently happen in the hands of ignorant rash operators.

CASE I.—The arm presenting. The right is to be distinguished from the left by laying hold of the child's hand, in the same manner

as in shaking hands; and thus the general position of the child may be judged of.

When the accoucheur is called in early, the reduction is generally practicable; but if the arm protrudes through the vagina, and the shoulder be locked in the pelvis, it is needless, by fruitless efforts, for the accoucheur to fatigue himself, and distress his patient, to attain a point by which he will gain no very material advantage; as the hand can be passed into the uterus by the side of the child's arm, which will, of course, return into the uterus when the feet are brought down into the vagina.

In order to make the delivery, the hand of the accoucheur, well lubricated, must be conducted into the uterus by the side of the child's arm, along the thorax, at the opposite side of the pelvis where the head lies; if any difficulty occurs in coming at the feet, this hand must be withdrawn, and the other introduced in its stead; and if still the hand cannot easily pass beyond the child's head or shoulder, the presenting part must be raised up, or gently pushed to a side, that one or both feet may be laid hold of, which must be brought as low as possible, pushing up the head and shoulders, and pulling down the feet alternately, till they advance into the vagina, or so low that a noose or fillet can be applied; and thus by pulling with the one hand by means of the noose, and pushing with the other, the feet can be brought down and the delivery finished, however difficult.

The method of forming the noose is by passing the two ends of a tape or garter through the middle when doubled; or, should the garter be thick, by making an eye on one extremity, and passing the other end through it: this, mounted on the points of the fingers and thumb of the accoucheur's hand, must be conveyed into the uterus, passed over one or both feet and ankles, and secured by pulling at the other extremity.

CASE II.—The side. This is discovered by feeling the ribs.

CASE III.—The back. This is discovered by feeling the spine.

CASE IV.—The belly. This is known by the funis.

These cases occur rarely, as the uterus must with difficulty admit of such positions. When any of these parts do present, the child seldom passes any part of the brim of the pelvis, and is, in general, more easily turned than in several postures in which it may offer. The belly, from the difficulty with which the legs can be bended backwards, except the child be flaccid, putrid, or before the time, will very seldom directly present; if so, it will be early and readily discovered by the prolapsus of the funis, and there will be no great difficulty to come at the feet, and deliver. The rule in all these cases is, to pass the hand into the womb in the gentlest manner possible, and to search for the feet and bring them down.

CLASS III.

When the child lies longitudinally in the uterus, with the arm or shoulder presenting, and the head more or less over the pubes, or laterally in the pelvis, the feet towards the fundus uteri, the waters evacuated, and uterus contracted round the child's body; these are the most difficult and laborious of all the cases of preternatural labours. Here the protruding arm ought, if possible, to be reduced, and the head brought into the pelvis; for unless the child be very small, it is impossible for the head and arm to pass along together.

In order to effect the reduction of the arm, different instruments have been invented; but the hand of the accoucheur is preferable to every thing of this kind, whether of ancient or modern invention. This, conducted by the arm that protrudes, must be insinuated through the vagina into the uterus, as far as the shoulder of the child, which if the accoucheur can raise up, he will generally succeed in reducing the arm. Should this method fail, he must attempt to push up the fore-arm at the elbow; but, in bending it, must be very cautious to avoid overstraining or dislocating the joint. In whatever manner the reduction is accomplished, if any method proves successful, the arm must be retained till the head, by the force of natural pain, enters the pelvis, and prevents its return; otherwise the arm will descend as often as it is reduced.

But if the attempts for reduction prove impracticable, the woman must be placed on her knees and elbows, and the accoucheur, with great deliberation, must endeavour gently to slide up his hand between the uterus and child as far in the uterus as possible, to lift up the head and shoulders, and search for and bring down one or both feet, in the best manner the various circumstances of the case will admit of. As soon as they can be laid hold of, they must be gradually brought down into the vagina, so low that the noose can be applied over them, which must be fixed and pulled with the one hand, while the head and upper parts of the body are raised and gently pushed up with the other.

Should the arm have been long protruded without the os externum, much swelled, and cold; the waters drained off; the uterus strongly contracted; and the position of the child such as to render it impracticable either to reduce the protruded limb or to search for and bring down the feet; the head, if easily come at, must be opened and extracted with the blunt hook or crotchet; or a crotchet must be fixed amongst the ribs, and the breech or feet thus pulled down.

Should the pelvis be very narrow, and unfurmountable difficulties occur, the arm must be twisted off at the elbow, though this expedient is rarely necessary; and the delivery must in general be

accomplished as the prudence and judgment of the operator can best direct ; always remembering, when one life must fall a sacrifice, that the tree must be preserved at the expence of the fruit.

In this, as in other cases, the swelling and coldness of the arm, and even want of pulsation in the artery, are not infallible signs of the child's death ; and should this even be so, it makes little difference in the mode of delivery, unless that it will lead us to pay all our attention to the mother : For a living child gives no more assistance in the birth than a dead one, whatever authors have said to the contrary.

When both arms present, the delivery must be conducted in the same manner as when one only presents. The former case is less difficult than the latter, as the head seldom advances far when both arms fall into the passage, so that they can either be reduced, or there is easy access to come at the feet to bring them down and deliver.

CLASS IV.

When the membranes remain entire, till the soft parts are so much dilated that the hand will readily find admittance ; or when the hand can be passed within the cavity of the uterus immediately after the rupture of the membranes, so that part of the water may be retained ; the delivery may be accomplished, in the most troublesome preternatural cases, with the greatest safety and expedition. But when the waters have been long evacuated, and the uterus closely contracted round the body of the child, the case will prove laborious to the operator, painful and dangerous to the mother and child.

When there is reason to suspect that the child lies across, which can often be ascertained, either by feeling the presenting part through the membranes, or by some of the signs of preternatural labours already mentioned ; the woman should be managed in such a manner, that the membranes may be preserved entire as long as possible : for this purpose she should keep quiet in bed, and her posture should be such as is least favourable for straining, or exerting force during the pain ; she should be touched as seldom as possible, till the os internum be sufficiently dilated. The accoucheur should then introduce his hand in a conical form, well lubricated, into the vagina, and through the aperture of the internal orifice, insinuating it between the uterus and the membranes till it advances almost as high as the fundus uteri, when he must break the membranes, by pinching some part of them between a finger and thumb, or by forcibly pushing a finger through them ; he must then search for, and endeavour to lay hold of, one or both feet, and deliver.

Should the membranes be ruptured in the attempt, he must be ready to run up his hand as quickly as can be done with safety ; when, part of the waters by his arm being retained, the operation

of turning will be facilitated. Should the placenta adhere on that side of the uterus where the hand is passed, it must again be withdrawn, and the other hand be introduced in the opposite side.

Floodings.—It has been already observed, that a flooding seldom proves fatal to the mother before the seventh month of pregnancy; after which period, from its duration or excess, the life of both the mother and child may suffer. Should, therefore, a flooding attack a woman in the two last months of pregnancy, from whatever cause it may arise, and whether attended with labour pains or not, if the hæmorrhagy be so considerable that she is ready to sink under it, and that cold applications and other means of checking the evacuation shall fail, the woman must be placed in a proper posture, her friends prudently apprized of her danger, and the delivery must be immediately performed, by stretching the vagina and os uteri, till the hand of the operator can easily gain admittance to break the membranes, catch hold of the feet, and extract the child.

If it can possibly be prevented, the membranes in flooding cases should never be broken till the aperture of the uterine orifice will freely admit the hand to pass, that, after the evacuation of the waters, the accoucheur may have it in his power either to make the delivery or not according as the effusion continues or abates.

Soon after attempting to stretch the parts, should the labour pains come on, the waters begin to be collected, and the uterine hæmorrhagy diminish, the accoucheur must then withdraw his hand, and manage the delivery according to circumstances. And if, for instance, the child presents naturally, the delivery must be trusted to nature; otherwise, if the flooding continues, or the child presents across, the accoucheur must persist in his work, going on slowly, and with the utmost delicacy, till he be able to reach the feet, to bring them down, and deliver; always remembering, during this process, that the strength of the woman, by proper nourishment, be supported.

But should the placenta adhere to the cervix, or upon the os uteri, the greatest danger is to be dreaded, for thus the flooding will commence from the moment the os uteri begins to stretch, and will increase so rapidly, that the woman, if not speedily delivered, must inevitably sink under it. The whole body of the placenta, in such cases, is sometimes separated when the labour has made but little progress; so that the woman will often perish whether delivery be attempted or not. As this, however, is the only expedient by which her life, and that of the child, can be saved; in every case where the placenta presents, which the accoucheur will readily discover by the touch of the soft pappy substance of that body, he must immediately place the woman in a proper posture, insinuate his hand gently by the side of the protruding placenta, break the membranes, search for the feet of the

child, and bring them down, so that the delivery may be finished with all possible expedition; for, in this unhappy case, a few minutes' delay may prove fatal.

The after-birth ought never to be extracted before the child, if it can possibly be avoided.

After delivery, time should be given for the uterus to contract, that nature may thus throw off the placenta, which never ought to be hurried away, unless the continuance or a recurrence of the hæmorrhagy render it necessary.

Prolapsus of the funis.—Difficulties arising from the funis falling down into the vagina, and presenting along with some part of the child, may, in this class of the division of preternatural labours, be included.

A pressure on the chord, in such a degree as to interrupt the circulation, must infallibly destroy the life of the child: hence a coldness and want of pulsation in the chord is the truest criterion of the death of the child; and hence, in every case where the chord is prolapsed before any bulky part of the child, if the delivery be not accomplished with expedition, the child will perish. This is only to be prevented by replacing the chord, and retaining it above the presenting part, till this last, by the force of labour pains, be so far advanced as to prevent the return of the former; or the child must be turned and brought by the feet, provided this can be done with safety to the mother. But it is often difficult to succeed in the attempt of the one or other; and, if the woman has strong pains, such attempts are not to be hazarded, as the consequences may prove fatal.

When the accoucheur is thus situated between two puzzling difficulties, the preference must always be given to the mother. If the child be small, and the pelvis well formed, which may be known by the history of former deliveries, and if the labour goes on quickly, the child will generally be born alive; but if, on the contrary, the child be above the ordinary size, and the pelvis rather narrow, turning will prove a dangerous operation to the mother, and there is little prospect of saving the infant by this means.

SECT. I. CASES OF PRETERNATURAL LABOUR.

The facts recorded by Dr. Smellie on this interesting division of the practice of Midwifery, are too valuable not to deserve a preference to any of modern times: we shall therefore present them to the reader in a regular series, leaving it to his discernment to note the deviations from modern practice which may occasionally present themselves.

Preternatural Labours, in which the Legs or Breech presented instead of the Head.

CASE I.—“In the year before I settled in London,” says Dr Smellie, “a midwife sent for me to assist in a labour. The legs of the fœtus were forced down through the os uterî into the va-

gina immediately after the membranes broke, and she had tried to bring down the child's body by pulling.

"As I suspected from this information, that the body lay double in the uterus, which prevented the breech from coming down in the former trial, after stretching the os externum, I introduced my hand into the vagina, and up along the thighs of the child to within the os internum, where I found the breast and chin squeezed down at the left side, just above the brim of the pelvis.

"After considering the case, I took hold of the feet with my other hand, which were without the os externum, and pulled at them; while at the same time I pushed up the breast and head to the fundus uteri, with the hand that was introduced at first.

"Finding that the breech came lower, and that the pushed-up parts did not return, I withdrew my hand from the uterus, and having wrapped a cloth round the legs, pulled at them with both hands, till I brought down the breech to the os externum.

"As the belly of the foetus was to the left side of the pelvis, I turned it back to the sacrum; and although I tried to deliver without bringing down the arms, yet I found the shoulders so large, that I was obliged to introduce a finger over one of them, and along the arm.

"This I slipped down gently into the concavity of the sacrum, and brought it out through the external parts with a semicircular turn, to prevent a fracture in the extraction.

"Then I brought the body lower, but finding that the head stopped at the upper part of the pelvis, I insinuated my hand up along the breast, and introduced a finger into the mouth, and by pulling gently, brought the forehead into the concave part of the sacrum: being afraid of overstraining the under jaw, I quitted that hold, and placed a finger on each side of the nose; then I laid the body of the child on that arm, and by slipping the fingers of my other hand over the shoulders, and on each side of the neck, I got the head safely extracted.

"That I might operate with greater ease, both to myself and the patient, she was at first laid on her back across the bed, her breech to the side, and two women supported her legs: in delivering, I at last was obliged to raise up the child's body, so as to bring out the head with a half-round turn upwards, to prevent the perinæum's being tore, as these parts were forced outward in form of a large tumor; by which precaution, both the mother and child were safely delivered."

CASE II.—"Being sent for to a woman in labour, the midwife told me, that at her first examining, and even after the membranes were broken, she could not distinguish what part of the child presented, until the pains forced it lower and lower; and then, both by the discharge of the meconium and the touch, she found that the breech presented; but having waited several hours

in expectation of the delivery, and at last being afraid of the child's life, she had recourse to my assistance.

"On examining I found the nates at the lower part of the pelvis, and in a right position with the thighs to the sacrum: as the pains were now weak, and expecting it would require considerable force to deliver the child, I caused the patient to be laid in a supine position, as in the preceding case.

"In time of the pains, I gradually stretched the frenum labiorum with my fingers; then standing up, turning the back of my hand downwards, and introducing my fingers betwixt the breech and the os coccygis, I tried to raise up the nates, so as to be able to bring down one or both legs.

"Although I failed in this attempt, and could not raise the nates so high as to allow my hand to pass up into the uterus; yet this effort gave more room, by stretching the parts, and allowing an easier passage for the child, which I found was very large; and indeed this was the sole occasion of the difficulty.

"After bringing down my hand, I introduced the fore and middle finger of each into the outside of each groin, betwixt the thighs and body of the child: with the assistance of this hold, and pulling from side to side, and upwards, to prevent the perinæum's being tore, I at last brought the hips through the os externum, at several efforts, and by the assistance of the weak pains: after which, and with much fatigue, I brought down the arms, and delivered the head as in the former case.

"Although I used all precaution in delivering the head, and indeed exerted less force than in the former case, yet the child was dead: a circumstance which seemed to proceed from the long pressure of the funis, by its being tumefied and squeezed of a flattish form near the navel."

CASE III.—"I was called, about five in the morning, to a patient that had bespoke me to attend her in labour of her first child; she had been in labour most part of the night, and did not send till the membranes were broken.

"The breech presented; the thighs were to the right side of the pelvis: the right hip was forced down in the back part, and the left stuck above the ossa pubis.

"As this was her first child, I waited with patience, in hopes that both hips would advance gradually, and stretch the vagina and external parts; but the meconium having come down in great quantity, the woman also being much fatigued, and the pains abating about noon, I was afraid, if I delayed assistance longer, the child would be lost.

"Finding that the delivery was principally retarded by the hip sticking above the pubis, I dilated the os externum a little, and after introducing two of my fingers betwixt the pubis and the hip, pressed and moved it in time of a pain to the right side of the pelvis: this endeavour immediately altered the former position, by

bringing the thighs to each side of the sacrum. The child being small, was forced lower and lower every pain; the body and head were delivered, without my being obliged to bring down the arms, as in the former case.

"The woman lay in bed on her left side; and as the head was small, I delivered it according to Daventer's method, by fixing the fingers of my right hand over the shoulders, and on each side of the child's neck; then taking hold of the body with my left, and pulling with both hands backwards to the patient's breech, I brought out the occiput and vertex from below the pubis, while the chin was within the lower and back part of the vagina, to prevent tearing the fourchette, which felt very rigid.

"The child lay some time breathing but seldom; but at last, recovered more strength."

CASE IV.—A physician, of Stamford, was called to a woman aged thirty-two, having gone her time with her first child, some slight pains came on, and the waters broke; after which the pains went off for a fortnight, then came on again, and the faces of the child were observed by the midwife to come away.

"Upon examination," says he, "I found one of the hips present; but the os internum not being open enough, and the pains only slight, I directed some laudanum, with tincture of castor, and warm suppings, desiring the woman to compose herself and if any change happened to send to me again.

"In a few hours the pains were so increased, and the os internum so opened, that when I was fetched back I found the nates of the child squeezed out, which I helped forward to the hams, then got out the legs, and after giving a quarter turn to bring the head right in the pelvis, fetched down the arms, delivered the head, and with a little assistance the placenta.

"No pulsation could be perceived in the umbilical cord, though the mother thought she had felt the child stir that morning; but probably the same pressure on the abdomen of the child, which had brought away the meconium, stopt at the same time the circulation in the navel-string.

"Every thing went on right after delivery, by the help of a few more drops of the tincture, and the woman got well at the usual time."

CASE V.—Dr. Smellie assisted in a case much of the same kind as the former, but was obliged to bring down the body in a different manner: for, when called, he found the breech presented low in the pelvis, and the thighs to the left side. "The midwife told me," says he, "that it had been long in that position, that she could not move it, after repeated trials and strong pains. As the patient lay on her left side, I tried to raise the breech with my right hand, so as to bring down the legs; but the contraction of the uterus being so great against me, I could not move it up sufficiently for that purpose: however, by this trial I did some service,

in opening the os externum, and likewise felt a pulsation in the navel-string, as it lay secure betwixt the thighs, which kept it from being pressed. The ischium being much lower than the pubis, I durst not venture to bring down the thighs at that part, neither did I choose to pull the body further down to make more room, for fear of engaging the shoulders too low in the pelvis, which would prevent my turning the fore parts of the child to the back parts of the uterus; but I turned up the right thigh from the ischium to the pubis, by which means I easily got hold of the joint at the knee, and brought down that leg, and after that delivered the other leg in the same manner. I had tried before this to turn the breech with my fingers of both hands, on the outside of the groins, both backwards and forwards; but the breech being large, and firmly locked in the pelvis, I could not move the thighs in that manner either to the sacrum or pubis. After I brought down the thighs and breech to the os externum, a strong pain came on sooner than I expected, and pushed down the body to the shoulders, before I was aware, into the pelvis. After wrapping a cloth round the child's hips, I tried to turn the fore parts to the back parts of the patient, but could not move it, till I forced up the body again to the hips; by that means the shoulders were disengaged, and the belly yielding easier, I got it turned backwards. I then delivered the body and head, as in the second case; but the last coming more difficultly, I was obliged to bring down both arms before I could extract the same with safety."

CASE VI.—"I was bespoke to attend a woman in her first child. When I was called, I found that the membranes were pushed down with the waters in time of a pain, and that the mouth of the womb was very thin, and open about the breadth of half-a-crown. As the pain went off, and the membranes grew lax, I pushed up my finger further, and found some part of the child through them; and although it felt round like the head, yet it was softer at some parts than others, and more unequal, which made me suspect, as it was so high up, that it might be the shoulder: however, as this was her first child, and the parts were very strait, and the patient very young, I thought it more advisable to wait with patience, to let the parts open in a slow and gradual manner by the membranes and waters. This being in the evening, I left her, and called again about eleven that night. The pains had been but slight, and there was but very little alteration in the mouth of the womb; only I found that the membranes were pushed further through it. I could now more distinctly feel the part that presented, and was pretty certain that it was not the head. I wanted the labour to go on slowly, to allow time for softening, and stretching the os uteri: I was also afraid, if the labour was hurried on too fast, especially as I found the membranes pushing down of a longish form, that they would break too soon, or be-

fore the os uteri was fully opened. I ordered an anodyne draught, and desired her to go to bed, and to take all the rest possible. In order to amuse her, and keep her from thinking too much upon her situation, I told her that the labour was scarcely begun, and desired the nurse to send for me as soon as the waters came off: however, as the case might turn out difficult for the patient, and dangerous for the child, if not rightly managed, I staid all night without her knowledge, and went to bed in the house. I was not awaked till the membranes broke, about six in the morning, when I examined, and found the os uteri considerably more open, and not so rigid, and the breech pushed down into it, with the thighs to the pubis. The nurse informed me, that the patient had slept betwixt the pains, which grew gradually stronger; but she had not had any since the waters began to come off. I desired she would still keep quiet in bed, thinking that now, perhaps, her sleeps would be longer and more refreshing, if she continued any time free from pains. Accordingly she enjoyed a good deal of sound sleep, during which she had some slight pains, and some of the waters were discharged.

"About ten, the pains grew stronger and more frequent, by which the breech was forced down, and gradually dilated the os uteri to its full extent. I then began to stretch the os externum gently every pain, that I might assist the delivery with greater ease, to prevent the child's being lost by its stopping too long, when come down to the lower part of the pelvis.

"As the breech advanced further, the meconium began to be discharged. The middle of the thighs being then down at the lower part of the pubis, I introduced my finger betwixt them, up to the belly, and felt the funis, with a pulsation in it. I then introduced a finger of each hand to the outside of each groin, and helped down the hips lower, till I felt the hams at the under part of the pubis; then taking hold of one of them with the fingers and thumb of each hand, I brought down the legs slowly, first one, and then the other. The limbs being slippery, I introduced a cloth betwixt them and my fingers, to prevent their slipping, and then turned the fore parts of the child to the back parts of the uterus. I had several times found, that after I had turned the child in that manner, the forehead, instead of being backwards to the side of the sacrum, was towards the groin, and brought down with great difficulty in that position, unless I could turn it more backwards, by pressing it with my fingers: in order to prevent this difficulty, I turned the body a quarter more, which brought the forehead backwards, as above, and then delivered as in the former cases. The child was alive."

CASE VII.—"I was called by a midwife to a case where the breech presented much in the same manner as the former. It was the woman's first child; and before I was called she had

been many hours in labour after the membranes were broken. The thighs were towards the pubis, and the breech was come down to the lower part of the vagina: the perinæum and fundament were pushed out in form of a large tumor by the breech, which had stopped there for some time, and the woman's pains were grown weak, and seldom. As she lay on her side, I dilated the os externum gradually during every pain; and when I could introduce all my fingers, I turned the back of my hand towards the perinæum, to raise the breech; but the woman shrinking away from me, and altering her position, I turned her on her back, and she being firmly held and supported by assistants, I proceeded without much interruption.

“ Having dilated the parts, I applied a finger to the outside of each groin, and tried to help along the breech; but could not move it, after several efforts. I tried to push up the breech, and bring down the legs, but could not raise it above two inches. I afterwards waited for some time, to see if the pains would push the breech further, especially after the parts were so much opened. Finding both them and the assistance of my fingers ineffectual, and the woman much exhausted, I introduced the large curve of the blunt hook with my left hand, betwixt the fingers of my right, along on the left hip, and slipped the point in betwixt the thigh and the body of the child, till I found the point past the inside of the groin, betwixt the thighs; then taking hold of the small end of the hook with my right hand, and applying the fingers of my left hand to the outside of the opposite groin, I gradually brought the breech lower; but finding it again stop, and that the left hip was brought further down by the curve than the right, I changed it to that side. After repeated trials, I could not deliver the breech, nor bring the body so low down as to manage the legs. I now withdrew the hook, and with a good deal of difficulty, passed a garter betwixt the thighs and body, by the help of which the parts advanced, till the joint of the ham came below the pubis; then bringing down the legs and thighs, and wrapping a cloth round them, with a good deal of difficulty I turned the back parts of the child to the fore parts of the uterus. I tried to give a quarter turn more, with the hip up towards the pubis, but could not move it further. I therefore began to pull along the body of the child, which required greater force than I expected; but at last I delivered the belly, which felt very large; upon which, the shoulders and head came easily along.

“ Although I felt (from my not being able to give the hips the quarter turn) that the chin, instead of being at the side of the pelvis, was towards the left groin, yet, as the head was small, I moved it backwards, and with my finger in the mouth, brought the forehead to the hollow of the os sacrum, and delivered as in the former cases. When I examined the child, I found that the

whole difficulty proceeded from its having been dead, so that the belly was very much swelled; a circumstance which I did not suspect, as both the woman and midwife had assured me they felt the child stir; however, it had certainly been dead several days, for the scarf-skin was livid, and stripped off in several places."

CASE VIII.—"Being called to a woman whose former labours used to be pretty easy, the midwife told me, that one of the hips presented; and although the mouth of the womb was largely open, and the patient had been in strong labour, yet the other hip did not advance, but stuck above the share-bone. I found the left breech pushed down to the middle and back part of the pelvis, and pretty much swelled; and perceived that the thighs were to the left side, and the right hip above the pubis, as the midwife had said. As the woman had been much fatigued, and her pains were grown weak, I introduced my right hand, contracted into a conical form, into the vagina, and pushing up the breech higher, made room for my hand to advance along the thighs, towards the fundus uteri: finding the legs up towards the fundus, and some water still retained in the uterus, I easily folded down the legs, and after I had brought them and the thighs without the os externum, I turned the belly to the sacrum, and delivered the child, as in the first case."

CASE IX.—"I was called by a midwife to a woman who was in labour of her first child. The right hip was pushed down at the right side of the pelvis; the woman had been long in labour; a great many cloths had been wetted with discharges of blood from the uterus; and although it flowed gradually, and in small quantity, yet the woman was considerably weakened.

"As the fore parts of the child were towards the abdomen, I placed her on her side, and gradually, as in the former case, introducing my hand into the vagina, raised the breech: after I had insinuated it up along the left side of the child, I stood more behind the woman, and turning my hand to the fore part of the uterus; but the uterus being strongly contracted, I was obliged to advance very slowly, dilating as I advanced, and then could only bring down the left foot. I was afterwards obliged to push at the breech, and pull at the foot, alternately, before I could bring down the leg and the thigh. This being effected, I wrapped a cloth round the leg, and took hold of it with my right hand, while at the same time I applied the fingers of my left above the right haunch, on the outside of the groin; and by pulling with both my hands, brought down the body, till the ham of the right leg was descended below the pubis. I tried to turn the fore parts of the child backwards, but could not till I brought down the the right leg.

"Finding the child was large, and expecting it would take a good deal of force to deliver the head, I altered the woman's po-

sition, by turning her on her back; then wrapping a cloth round the thighs and breech, having already turned the fore parts of the child to the back part of the uterus, I brought it down to the shoulders; but finding it stopped at the head, I introduced my fingers and hand along the breast, and discovered that the obstruction was from the forehead's resting against the left arm of the child at the left side of the sacrum. I then brought down that arm, introduced two fingers into the mouth, and delivered as in the former cases, though not without a great deal of force: for after I had got the fingers of my right hand into the mouth, and laid the child's body on that arm, and taken a firm hold over the shoulders with the fingers of my left hand, I was obliged to increase the force every attempt. Being afraid I should overstrain the jaw, I withdrew my fingers out of the mouth, and tried Leventer's method, by pressing down the shoulders, so as to bring the occiput from below the pubis; the head, however, being too high to be moved by that method, I again had recourse to the former, but advanced my fingers higher, placing them on each side of the nose: I pulled so long, and with so great force, before the head was delivered, that I was surprised to find the child alive."

CASE X.—"I was bespoke to a woman who had suffered very much in her former labours from the pelvis being distorted. When I was called to her about six in the morning, I found the mouth of the womb largely open, and the membranes pushed down with the waters in time of a strong pain. As the pain went off, and the membranes became lax, I felt plainly through them, that the head did not present; but was uncertain whether it was the breech or the shoulders: I could just touch with my finger the projection of the last vertebra of the loins with the upper part of the sacrum. Though concerned that the child did not present fair, I was pleased to find that the pelvis was not quite so narrow as it had been represented.

"About an hour after I came, and before the membranes broke, I examined, and found them pushed further down; and as the pain went off, I found that the breech presented. Placing the woman in a convenient position, as described in Collect. xxv. No. 1, Case 1, with her head and shoulders lower than her breech, I gradually opened the os externum, and introduced my hand into the vagina as a pain went off. Endeavouring to raise the breech, my fingers broke through the membranes, and as a large quantity of waters were retained, I easily brought down the legs, which were to the back parts of the uterus.

"After I had brought down the body to the shoulders, I tried to bring the head into the pelvis, by pulling in different directions, viz. upwards, downwards, and from side to side; but finding I could bring it no further, I introduced my fingers and hand in a

flattened form betwixt the breast and back part of the os externum. In advancing further, I felt the chin and face at the upper part of the os sacrum, the forehead retained above the distorted part, formed by the last vertebra of the loins, and the forementioned bone : I tried to pull the forehead down with my fingers placed on each side of the nose ; but could not move it : then I pulled down the left arm of the child, and pressed the face and forehead to the left side of the pelvis, where there was more room. I made a second effort to bring down the head in the same manner as before ; but as it still stuck, I pulled down the right arm. In a third trial, I brought the forehead down into the hollow of the os sacrum ; delivered the head, and saved the child, contrary to expectation."

CASE XI.—" I was called by a midwife, and found the breech presenting, and the pelvis distorted. The midwife told me, that the woman's former labours had been very difficult and tedious ; but now, as the breech presented, she was afraid the difficulty would be greater ; observing, that she had sent for assistance as soon as she found (after the waters came off) the position of the child. As I found the thighs were towards the pubis, I kept the woman as she was then, lying on her left side, and brought her breech nearer the side of the bed. Introducing my hand into the vagina, I pushed up the breech of the child, and advanced along the fore parts of the uterus, to search for the feet ; but, finding a greater resistance than I expected from the uterus and child, and perceiving the head and shoulders of the woman lay high, I turned her from the side position to her knees and elbows, without bringing down my hand, by which means her breech was raised higher than the body. I found the resistance diminished, and brought down the legs ; then turning her to her back, brought down the body. After I had turned the fore parts of the child to the back parts of the uterus, I introduced my fingers to the face, as in the former case. Finding it to the left side of the projection at the upper part of the sacrum, and the right arm lying before it at the left side of the pelvis, I first brought down that, and then helped down the forehead ; but before I could deliver the head, I was obliged to bring down the other arm, and saved this child also, although a good deal of force was used to deliver the head.

" Five minutes elapsed before the child breathed, and it continued much longer breathing weakly ; but by the use of stimulants it began to cry, and continued to cry incessantly till one of the women observed a large swelling betwixt the left ear and temple. This I immediately pressed with my finger, on which it ceased crying ; but in taking them off it began again, and the swelling that subsided on pressure returned. To remedy the complaint, I dipped a thick compress in a mixture of oil, spirits, and vinegar,

and applying it to the tumor, desired the woman that held the infant, to keep her fingers pressed on the place for a long time. When I examined it next day, the swelling was gone; and it appeared to have been that part which stopped so long at the projection of the upper part of the sacrum, before the head was delivered."

CASE XII.—"I was called, in a great hurry, to a woman in the same street. On examining, I found the body of the child delivered, and only the head remaining unextracted. The patient was pretty corpulent, and begged that I would relieve her out of her misery, and if possible save the infant.

"I felt no pulsation in the funis umbilicalis; but as that might have been just stopped, I immediately, and with great ease, delivered the head, by introducing my hand betwixt the neck of the child and the back part of the pelvis. I slipped two fingers into the mouth, which was to the left side of the sacrum; by that hold I brought down the face and forehead, turning them at the same time a little more backwards, into the concave part of the sacrum: then placing the fingers of my other hand over the shoulders, and on each side of the neck, and raising up the body, as the woman was in a supine position, I delivered the head, as described in Case I. and II. under the present head.

"Two of the patient's sisters who were present, finding the child was dead, expressed their resentment against the midwife, and ordered her out of the room: however, I interposed, and desired that she might first assist in laying the woman right in bed; then I begged to hear the progress of the labour.

"As she found the breech present, and had used more force than is commonly exerted, the friends had been alarmed; but were satisfied for a little, when she assured them that the child came in the natural way, and that the patient and child would be soon and safely delivered.

"She at first brought down the body and arms easily, with the assistance of the strong pains, but with all her strength she could not deliver the head; and at last was obliged to own to the attendants that the child came wrong; though not before she had made several trials after the first alarm."

CASE XIII.—"I was called by a midwife, who told me that the body of the child had been delivered an hour ago; but not being able to bring out the head, she had desired my assistance. As the pains were now grown stronger, she begged I would wait a little, and if the patient was not soon delivered she would introduce me to her. I enquired if she had felt any pulsation in the funis, after the body came down; she acknowledged that she had felt it at first, but it had stopped long ago.

"She was called into the room in a hurry, and the head was immediately delivered by the pains.

"About an hour after I was sent for by the same midwife to another woman, where the breech presented, and who formerly was used to have tedious labours.

"I had told the midwife on the former occasion, that she had lost the child by not sending sooner, and desired she would never call me again in such a manner. This reproof had the desired effect, for she sent for me in this case immediately on the waters coming off, and when she was certain that the breech presented.

"Finding the pelvis narrow, and that the breech did not advance with the assistance of the strong pains, I brought down the legs; but as the patient did not lie in an advantageous position, as described in Case I. of this collection, I caused her to be turned to that posture, and delivered the body and head of the child, as in the two last cases; but with greater difficulty than any that I ever delivered in that manner, the child being alive.

"After the body and arms were brought down, by dint of many repeated efforts, I delivered the head; but in the mean time, imagined it was impossible the child should be alive, as I found the neck was so overstretched; and if it had not come along at the last effort, I was resolved to have used the assistance of the crotchet.

"I stopped in the middle of these efforts, and attempted to extract with the short straight forceps; but the head was above the brim of the pelvis, and the curvature of the os sacrum prevented their taking a proper hold, so as to be of any service. This was the reason which prompted me to contrive a longer kind, the blades of which are curved to one side."

CASE XIV.—"I was sent for in a great hurry to a labour, where the midwife had delivered the body and arms of the child; but, after several trials, and the assistance of the pains, could not extract the head.

"The forehead was detained above the pubis. Finding it was not possible to move it backwards towards the sacrum, as she lay in a supine position across the bed, I pulled the body of the fœtus downwards, and, at the same time, pressed the chin with the finger of the other hand to the breast: by pulling up and down with both hands, I at last brought the forehead out from below the pubis, and delivered the woman of a dead child, though not without a good deal of force.

"I have had several cases, in which the nates presented, and the children, where small, have been delivered safely with the labour pains; especially when the fore parts of the fœtus were to the back parts of the uterus, but commonly with more difficulty when in the above position."

CASE XV.—In this instance the breech presented, a flooding came on after delivery, and the woman died. It is communicated

by a correspondent of Dr. Smellie's, who was called to a woman that had miscarried two years before, and since that had been subject to copious discharges, high coloured and foetid.

The membranes had been three days broken : he found the pains were but inconsiderable, and some waters still drained away during each ; being also high coloured and foetid.

The os uteri was high up, thick, but little open ; which prevented his knowing the position of the foetus.

As the pains were faint, the child advanced very little in many hours ; yet she complained as much as if she had been in strong labour ; and the os uteri was so extremely sensible, that she could not bear the gentlest touch without screaming.

When the pains grew quicker and stronger, she placed herself on her knees, at which time he found the nates presented, and endeavoured to dilate the passage ; but although the pains were vigorous and forcing, the part came no longer, neither could he apply his fingers to the groins, to help the body along.

He then laid her in a supine position ; and after introducing his hand into the uterus, with great ease brought down one leg, and finished the delivery.

The child at first shewed small signs of life ; but afterwards recovered. The mother, soon after delivery, was seized with a flooding, which, notwithstanding all he could do, carried her off in an hour.

Dr. Smellie observes on this case, that, " as the patient was not weak, and had strong pains, there was no occasion to force open the parts so soon to bring down the leg : the child is seldom in danger of being lost, before the nates come down to the external parts : for it is safer for the patient to allow them to open the os uteri slowly, than to endanger its being torn with the hand."

CASE XVI.—A practitioner at Boston, in Lincolnshire, between eleven and twelve at night, was called to a woman who was suddenly taken with labour pains when asleep in bed, and they had broken the membranes.

" She had a strong pain," says he, " when I entered the room ; but my coming in gave a check to them till some time after.

" When I examined, the nates presented at the lower part of the pelvis, and the pains being strong, I did not attempt to push up the breech, to bring down the legs ; I only dilated the os externum, and soon after that, I was able to insinuate a finger into one of the groins ; and in a little time, a finger of my other hand into the other groin ; by which means, and the assistance of the pains, I drew down the body to the hams, and extracted the legs.

" Having wrapped a cloth round the extracted parts, as the face of the child was towards the sacrum of the mother, the delivery was soon finished, only it stuck a little at the head, and the

placenta adhered to the back part of the uterus, but came off without much trouble.

"The child was a lusty girl; and although she did not at first seem alive, yet in a little time after she began to cry.

"The patient, after being put in bed, was attacked with violent pains in her hips and body; on which I was again sent for. As the discharges were small, I sent an anodyne mixture, which gave her immediate ease."

CASE XVII.—"One of the gentlemen, and one of the midwives, that attended my lectures," says Dr. Smellie, "were sent to one of the poor women, who was taken in labour in the eighth month of pregnancy.

"The os uteri was a little open; the membranes were forced down with the waters, and broke soon after they arrived; when finding that the child did not present in the natural way, they immediately sent for me.

"On examining, I found the os uteri thick and rigid; within it, on the left side, an elbow; and on the right, one of the nates.

"The patient had, some time before that, been much weakened by a quartan ague; her pulse was low and weak, her body greatly emaciated, and she could scarcely speak, or stand upon her legs.

"Being informed, that she had taken little nourishment for several days, I sent for and ordered her to take a little toasted bread and warm wine frequently, to recruit her strength and revive her spirits.

"Having sent for my principal midwife, and the rest of my pupils, I desired her to keep the patient quiet in bed, which indeed was only a little straw laid in a cold garret; for at that time we were obliged to smuggle our patients, on account of the barbarity of the church-wardens.

"In about four hours after this, the midwife sent for me; the woman was now much recruited by the nourishment she had taken; for besides the bread and wine, she had also got some broth; her pulse was much stronger, and she was able to walk about the room.

"After waiting some hours longer, and considering the woman had formerly easy labours, I thought it was a pity to keep her longer in pain, as there seemed little hope of her being delivered without assistance; for, in examining again, I imagined what I took for the elbow was a heel, and the other one of the shoulder.

"Having placed the patient on her knees and elbows, according to Daventer's method, not indeed of choice, but from necessity, for want of proper accommodation, and having her firmly supported by the female assistants, I gradually dilated the os externum, and, with some difficulty, introduced my hand into the vagina. Then I found, with more certainty, that the foetus presented ac-

according to my first opinion, viz. the hip at the right side, and the elbow, with the head above it, at the other side, within the os uteri. This I tried to stretch open; it was then about the width of a crown-piece, and could only receive the ends of the thumb and fingers contracted together, in a conical form; but the orifice felt so thick and rigid, that I could not, by several efforts, dilate so much as to be able to introduce my hand into the uterus. Although the patient bore it with a good deal of patience, yet it fatigued her so much, that I desisted, and was afraid of using greater force.

"The assistants seemed much surprized when I ordered the woman to be again laid down on her side, and did not attempt any more to deliver the child; but they were all satisfied, when I told them the danger of lacerating the uterus, and of the woman's dying in the operation, from her great weakness; and that as there was no flooding, it was much safer to continue giving her nourishing food; for although the child presented wrong, yet when her strength was recruited, the pains would come on stronger, by which some of the parts would be forced down, and gradually dilate the os uteri.

"I also observed, that if the labour ended as I had foretold, it would be of greater use to them than to have seen me run too great a risque of the woman's life, and after all be foiled in the delivery.

"As her pains were weak, and at long intervals, I gave her a grain of opium to carry them off, and procure rest, desiring one of the midwives left with the patient, to give her a little broth frequently, and to send for me and the rest of the pupils when the pains came on, and when she found the os uteri more open.

"When we left the patient, it was eleven at night, and we were all called early next morning. By that time three of the gentlemen reached the place, the breech came down of a sudden, and one of the pupils delivered the body and head with great ease, as the child was small.

"When the rest of the pupils arrived with me, we were informed, that the woman had been visited with pains every now and then, and slept betwixt them, so as to be much refreshed; after which slumbers, the pains had suddenly returned with greater vigour, forced down the nates, and opened the os uteri, which then felt soft and yielding. From the livid appearance of the child's body, and the stripping off of the scarf-skin, it plainly appeared, that it had been dead for many days. The woman recovered, though long in a weak condition."

CASE XV. II.—"A young woman going with her first child, of a weakly constitution, slender, and of a small size, had taken very little nourishment during the last months of her pregnancy, and had swallowed several purging medicines, from a mistaken

notion that she was dropfical. Both her husband and niece, who lived with her, died but a few weeks before she was delivered; misfortunes which funk her fpirits much, and increafed her weaknefs.

"The labour was very flow and lingering, on account of her great weaknefs. The midwife could not difcover any part of the child, till feveral hours after the membranes were broken, and then felt a foot, with a thigh lying a-crofs, at the upper part of the pelvis. She immediately fignified the danger, upon which account I was fent for. On examining, I found it in the fame manner as the midwife had defcribed: her pulfe was weak and low, and fhe lay on her left fide, with her breech near the fide of the bed.

"As fhe was fo feeble, I chofe firft to try if the body could be brought flowly along in that pofition. After ordering her a little warm wine, I introduced my right hand, which was anointed with pomatum, flowly into the vagina, during the time of a pain. I found the os externum fufficiently dilated, and brought down by degrees the leg and thigh: but then perceived the child was fo large, that it would not be poffible to bring it along, unlefs I could bring down the other leg and thigh alfo. The thigh I had already brought down, filled up the pelvis in fuch a manner, that I could not get my hand paffed, without uſing too much violence: I then by degrees, juſt as a pain was going off, bent the leg to the thigh, and pushed it up into the uterus.

"As the woman could not be kept firmly in this pofition, neither could I uſe fo ſteady and equal a force as to bring down the body, and extract the head, as I could do while ſhe lay fupine on her back, I had her placed in that pofition. She had not any flooding, except ſome little ſhews, as they are termed by the midwives; theſe are only a few ſtreaks of blood, which frequently proceed from ſtretching the os intenum. I again introduced my hand into the vagina, then paffed it along at the fide of the pelvis, through the os intenum, up into the uterus, and within the membranes. I kept my hand there a little to difcover the pofition of the child exactly, which lay with its left buttock, thigh, and leg, over the brim of the pelvis, its belly towards the mother's, the right buttock to the woman's right fide, and the ſhoulders up to the fundus uteri, with its head turned downwards to the left fide. I had introduced my left hand, which luckily answered beſt in this pofition. I then raifed up the buttocks, and turned the belly more to the right fide, which brought my hand eaſier to the right thigh and leg of the child, which were extended up along the belly and breaſt. I laid hold of the leg, and folded it down along the thigh to the buttock; then brought it and the other leg into the vagina. The knees and thighs followed; but the child being large, and the woman ſmall, although the pelvis was well ſhaped,

according to her size, the breech and body of the child came along with great difficulty.

"I began to turn the belly of the child to the mother's back, before the breech was brought through the os externum: when the breech was turned to the os pubis of the mother, I gave it a quarter turn more, till its os sacrum was to the right os ischium, that this might turn the child's face, that lay to the right side of the uterus, to the back part. I then turned its os sacrum back to her os pubis, and brought along the body, and the arms, and delivered the head as directed in the treatise, but not without a good deal of force. The child was alive, which I scarcely expected; the mother was so weak, that she could give little assistance to help along the placenta, but it was at last separated slowly, and safely delivered; she luckily had no large discharge from the uterus, but was in a very low, faintish condition for several hours. The only thing that could be done now, was to give her a little warm wine and water frequently, and sometimes a little weak caudle, to nourish and strengthen her weak body. I ordered her belly to be kept moderately pressed with an assistant's hands, till a bandage could be safely applied. She was so weak, that I thought it was better to go on in giving her nothing more than a little nourishment, especially as it stayed on her stomach. For some weeks before, she had thrown up most of her food, and could scarcely retain as much as to keep her alive: however, I ordered the following medicine; but only to be used if she should be taken with violent pains, or restlessness:

(No. 11.) ℞ Sperm. ceti.

Theriac. venet. ā ʒj.

Syr. croci q. s. ut f. bolus sumend. cum haustu.
sequent. et rep. quarta quaq. hora, vel ut opus
fuerit ad duas vices.

(No. 12.) ℞ Aq. cinnam. ʒiʒ.

Spirit. nuc. mosch.

Syr. papav. alb. ā ʒij. misce.

"The next day I found her much better; she had got some rest; and the discharges were moderate, although she had not taken the medicines."

Women in Labour, and the Children in a wrong Position.

CASE I.—"I was called in the night to a young woman, who lived at some distance in the country; and was told by the messenger, that she was in the utmost danger from a violent colic.

"After my arrival, while the mother was telling me about her daughter's illness, I observed the colic pains returned periodically, and seemed more like labour than the alleged complaint.

"She was then in bed, lying on her side, and her back towards the place where I was seated. On pretence of examining her stomach, I felt the lower part of the abdomen of a round globular

figure; and below the integuments, the uterus firm and tense, above the pubis, and betwixt that and the umbilicus: then I examined the vagina in time of that pain, and found the membranes forced down with the waters to the lower part thereof. When the pain abated, I felt the shoulder and arm of the fœtus within the relaxed membranes.

"Without saying any thing to the patient, I desired to speak with her mother and aunt in another room; and as this was an ante-nuptial affair, I told them the case; and desired they might hold their tongues at present; for, if they acted otherwise, it might endanger the patient's life.

"Having desired the patient to move her breech near the side of the bed, and slipped a bed sheet, folded, below her, to sponge up the moisture, I gradually introduced the fingers of my right hand, contracted in a conical form, through the os externum, which was largely dilated by the membranes, during the interval of the pains. As one of these returned, I pushed my hand into the vagina, and against the tense membranes, to break through them, so as to get within them to the body of the fœtus; but they being rigid, my hand slipped through the os uteri, and up into the womb, on the outside of the membranes; then grasping them with my fingers, they burst asunder.

"As I had now introduced my hand within the membranes, I found the child floating in a large quantity of waters, which were kept up so as that not one drop could pass, my arm plugging up the passage. I now found the head was detained by the navel-string's surrounding the neck: this I disengaged, and by a little push at the head, it swam up to the fundus uteri; then the nates coming down, I took hold of the legs, and brought them without the external parts: the child being small, was easily delivered with the placenta.

"The child was alive, but died soon after. According to the patient's reckoning, she was only entered into the seventh month of her pregnancy. Had I known this circumstance at first, there would have been no occasion to do any thing but perforate the membranes; for, as the passages were so largely open, and the child so small, it would have been soon delivered in any position, with the labour pains; but as my hand was up in the uterus, it was then better to deliver as above."

Dr. Smellie says, this case was of great use to him afterwards; as he discovered by it, that the waters are prevented from coming down by the arm's plugging up the passage, if the membranes are not broken before the hand is introduced into the uterus; and this is a favourable circumstance, when the child is large, and in a wrong position; for, when the membranes are broken, and the waters pour all off at once, before the hand can be got up, the uterus contracts so close to the body of the child, that it is then more difficult to effect the delivery.

CASE II.—"A woman bespoke me to attend her, because her two former labours had been difficult, and both children had been lost.

"When I was called to her in labour, I found, during a pain, the os uteri largely open, and within the membranes the feet and nates of the foetus; but before mentioning this, I enquired of the patient how her former labours were, and if in the natural way: the nurse answered, that they were; but on my saying, that the child came now in a wrong position, she acknowledged that both the former children came by the feet, and were delivered by different midwives, who were obliged to use a great deal of force, and each a long time before the heads could be delivered; but this circumstance had been kept a secret from the patient, to prevent any gentleman's being called.

"Examining after this information, and not finding any signs of a distorted pelvis, I imagined that the loss of the children might have proceeded from the heads of both obstructing the circulation in the navel-strings. Being in hope of succeeding better, I had the patient laid in bed, in an advantageous position, for the more speedy assistance, if the delivery should prove tedious; viz. supine, across the bed, and her legs supported by two of my pupils, who were allowed to be present, as a recompence for my trouble.

"The pains being strong, the waters had by this time forced down the membranes through the os externum, into which I easily introduced my hand, broke the membranes, and brought down the legs and body of the child; but as it stuck at the shoulders, I was obliged to bring down one of the arms, and after that another: I then felt that the difficulty of delivering the head was from the child's being large, and the patient and pelvis small.

"As I still felt a pulsation in the funis, I had, all along, and at the different efforts, used great caution to prevent over-straining the neck; but after many unsuccessful attempts to deliver in time of the pains, and the pulsation of the funis growing languid, as well as the woman's efforts, I was obliged to increase the force, as in cases of the last collection. I had the long curved forceps ready; but as I had delivered children with more force, and alive, I tried one effort more, by which the head was delivered. At that instant I was sorry to find the neck overstrained, and reflected, that this might have been prevented with the above instrument. The child, when delivered, seemed alive, and by using the common method to assist respiration, it gasped three or four times, and expired.

"Besides my being sorry that I did not try the forceps, before this last effort to deliver, I also reflected, that as there was a large quantity of waters surrounding the child, that the membranes were not broken, the parts largely open, the woman and pains strong, and that her children had been lost from the difficulty of delivering the head; these circumstances considered, it would have been

better practice, to have introduced my hand into the uterus, broke the membranes, and brought down the head to present; by which means it would have been squeezed down in a lengthened form through the small pelvis, and the child would have had a better chance of coming with more life into the world; but I own I did not think of this method till it was too late, and the body was brought down."

CASE III.—"Being called to a woman in labour, the midwife told me, that the labour had gone on in the common way, by the membranes being forced down, and opening the internal parts; but in place of the head, she found something like a hand or foot within them; on which account, she had recourse to my assistance, as soon as she perceived the wrong position of the child.

"Some time before I arrived, the membranes broke. On examining, I found the hand and fore-arm forced down without the os externum; and being informed that a large quantity of waters had been discharged from the uterus, I expected it would require much force to turn, and deliver, by bringing down the legs of the child.

"Having prepared every thing necessary to prevent hurry and confusion in time of the operation, and having also put the patient in a supine position, I took hold of the child's hand, which was the right, with my left hand, and introduced my right, in a flattish form, up betwixt the sacrum and the child's arm, where I found the shoulder closely engaged in the os uteri, which prevented all the waters from coming off; for, pushing up the arm and shoulder, they, with my hand, slipped with ease into the uterus.

"Finding that my arm filled up the vagina, so as to prevent the remaining waters from coming down, I with my hand examined the position of the foetus, and found the head low down at the left side of the uterus, the nates to the right, at the fundus, with the legs folded up at that side. As there was a large quantity of waters still remaining, I raised the head to the fundus uteri, and brought down the legs with much greater ease than I at first expected; and the child not being large, was safely delivered."

CASE IV.—"Being called to a patient in labour of her first child, I examined in time of a pain, and found the os uteri was open about the breadth of a shilling, the membranes and waters were forced down, and gradually dilating the parts; but not being certain as to the presentation of the child, I desired a midwife whom I left in waiting, to send for me, when she found the labour further advanced.

"The woman being impatient, I was again called in about two hours; when I found no great alteration, only the os uteri was felt a little softer and not so thick: as the pain abated, I likewise felt some part of the child; but feared it was not the vertex, as it had

not the large round hardness of that part, being rather softer and more unequal.

" I mentioned nothing of this ; but encouraged the patient, and allowed the labour to go on slowly, by which means the os uteri was gradually dilated ; and at last I plainly perceived that the face presented.

" In order to prevent reflections, if the child should be lost in the delivery, I privately, without the patient's knowledge, told her friends the wrong presentation ; and on pretence that a supine position would assist the delivery, I had her conveniently laid in that attitude, so that I could assist with advantage in case the waters should be discharged of a sudden.

" By this time the membranes had fully stretched the os uteri, and begun to dilate the vagina ; but being afraid they would break before they could sufficiently open the os externum, I gradually assisted every pain with two fingers in the vagina, to make room to introduce my hand, either to be ready, in case the membranes should break, to bring the head of the fœtus into the natural position, if the pelvis was narrow and the head large ; or if not, to turn and deliver by the legs.

" When the parts were sufficiently dilated so as to admit my hand, I easily introduced it into the vagina, on which the membranes broke, and some of the waters came off ; then I pushed up the head and insinuated my hand into the uterus, and my arm filling up the vagina and os externum, prevented any more from coming down.

" The fore parts of the child were to the right side of the uterus ; the pelvis was not narrow, nor was the child uncommonly large ; and there being still a large quantity of water, I with great ease and safety brought the legs, and delivered the child.

CASE V.—" One of the poor women where the pupils attended, fell in labour in the eighth month of pregnancy, about ten days after she had been severely beaten : she had been in a lingering way for two days.

" As the midwives and gentlemen could not feel any part of the child present, they suspected it would be a preternatural case, and sent for me. On examining, I found the os uteri largely open, and in time of a strong pain, the waters forcing down the membranes into the vagina ; but when the pain abated, and the tense membranes relaxed, no part of the fœtus could be felt, I then observed, as this was the woman's first child, it was still proper to have patience, and allow the membranes to stretch the vagina and external parts.

" Having ordered the patient to be laid in a convenient posture, as in the former case, to be ready to deliver in case the fœtus should be in a wrong position, I waited until I found the

membranes were forced through the os externum, and had sufficiently dilated the same; but finding them still rigid, the woman weak from want of nourishment, and considering the length of the labour before we were called, I thought it was proper to begin, and, if possible, to prevent the loss of all the waters, in case the child was in a wrong position.

"As a pain abated, and the membranes were relaxed, I introduced my hand into the vagina; but feeling no part of the child, I concluded it lay across the uterus, with the back, side, or belly downwards.

"In this opinion. I forced my hand up into the uterus, on the outside of the membranes; which giving way, I insinuated my hand within them, and was surprised to find the whole body of the foetus close up at the fundus uteri, and a large quantity of waters below, which were kept from coming off, by my arm plugging up the vagina: I also felt the head lower than any other part of the child: the cause of this position I did not know till after delivery.

"Having searched for the feet, and brought them with the legs without the os externum, I wrapped a cloth round them, and turned the fore-parts of the child backwards; but after several attempts I could not deliver the body. Examining the legs, and finding by the cuticula's being livid, and stripping off, that the child was certainly dead, and that the obstruction proceeded from the inflation of the abdomen, I resolved to open it with the scissars, or the more certain method of the crotchet: but on making another trial, and with a good deal of force, the expanded belly came out all of a sudden, and, as the child was small, the shoulders and head were easily delivered.

"If the membranes had broken, and the waters come off in time of the labour, the head of the child would have presented to the birth. I have had a few cases of the same kind, where I could not feel any part of the child before the membranes were broken, and I could not account for this circumstance before I attended this woman; but I have since observed where no part could be felt when the waters were come down with the membranes, and the passage was largely opened, and the head presented after the waters were in part, or wholly discharged, that the child had been dead some time; and from the inflation of the abdomen, was specifically lighter than the waters, especially when there is a large quantity kept at the upper part of the uterus; but if there is a small quantity, the head will be felt before they are discharged.

"Cases also happen when no part can be felt before, and sometimes even after the membranes are broken in pendulous bellies, and also when the child lies across in the uterus."

Children delivered in the last four Months of Pregnancy, from violent Floodings.

CASE I.—“ I was sent for to a woman, who was attacked with an hæmorrhage from the uterus in the sixth month of pregnancy, occasioned by a fall from a horse; she complained much of pain in her left side, on which she fell, and said her belly seemed as overstrained, from the violence of the shock.

“ She was brought home, blooded, and put to bed before I arrived at the place. The parts affected were also fomented and embrocated with a mixture of oil, spirits, and vinegar.

“ The discharge at first was but small: she had no pains that indicated a miscarriage coming on, and her pulse was regular. I ordered barley-water acidulated with sp. vitrioli for her drink; directing her to be kept quiet, that she might get as much natural rest and sleep as possible.

“ Next morning, finding that she complained more of the bruised parts; that the discharge still continued; and that the fear of this, and the fright from the fall, had prevented sleep; she was again blooded, upon which the above complaints were abated; and she being costive, was also much relieved by an emollient clyster.

“ In the evening several small clots of blood were discharged, with slight strainings, and the hæmorrhage returned with greater violence than before. The bleeding at the arm was repeated, and a paregoric draught given her, in which were twenty-five drops of laudanum, by which means the discharge again abated, and she slept pretty well all night.

“ The complaints from the fall were now much better; but she being much dejected on account of the danger of miscarrying, I endeavoured to soothe and assuage her fears. I desired her to keep chiefly in bed; to continue drinking barley-water acidulated, to live mostly on weak broths and panada, and to abstain from fermented liquids, and every thing that was not of easy digestion.

“ Nevertheless, for several days a bloody serum was continually draining; and every now and then some coagula came off with strainings; which brought on a fresh hæmorrhage, that soon abated.

“ About eight days after she had received the fall, I was sent for in great haste at six in the morning, and was informed that the discharge of a large coagulum of blood was followed by a violent flooding, which still continued.

“ I found her pulse low, her countenance pale, and she was so faint that she could scarcely speak.

“ I had all along told her friends, the great danger to which

she would be exposed if the flooding should return and increase before labour came on.

"Although she had already lost a large quantity of blood, yet it was by intervals, and there had been time between the discharge to recruit her strength by the above-mentioned light nourishing diet. I now found the discharge rather increased; that there was little probability of restraining it so as that she might proceed in her pregnancy; and I was afraid if I delayed attempting the delivery longer, she might soon be in imminent danger of her life.

"At this period of my practice, I did not know, that applying styptics in the vagina, and filling it up with dossils of lint, would sometimes restrain the flooding, and assist to bring on labour: neither did I know, that the breaking of the membranes, to allow the discharge of the waters, was of use to restrain the floodings, by allowing the uterus to contract close to the contained embryo or fœtus.

"Having signified to the friends the danger that the patient was in, I desired the husband to call another gentleman of the profession, who came accordingly.

"After being informed of every circumstance about the patient, he was of the same opinion, and thought it absolutely necessary to deliver her as soon as possible.

"Having encouraged the woman, I had her laid in a firm position, expecting, as it was her first child, it would require a good deal of force, and cost the patient much pain, before the parts would be sufficiently dilated, so as to admit my hand into the uterus.

"Having laid several doubles of a sheet below the patient, and being seated properly, I began gradually to stretch the os extermum.

"Having made room for my fingers, which were contracted together in a conical form, I continued moving them slowly in a semi-circular manner, and by intervals, till at last I introduced my hand through it into the vagina. During these and the following efforts, the patient was told, and imagined it was her labour coming on; by which deception she bore the pain with great fortitude.

"I now found the os uteri only so much open as to receive my fore-finger, by turning which from side to side, it yielded so as to receive the middle, and by repeated efforts was at last so much dilated as to enable me to introduce all the fingers of that hand; yet after several trials, I could not make a larger opening, and my fingers being much cramped, I was obliged to withdraw that hand, which was the right, and try to dilate with the fingers of the other; which were also ineffectual, so that I thought proper to desist.

"The patient having undergone much fatigue, we ordered her

ten drops of laudanum in a cup of burnt red-wine, and applied cloths dipped in vinegar to the external parts, and over the abdomen. Happily for the woman, we found that the flooding was again diminished, and agreed that supporting her as before with nourishing fluids to supply the loss of blood, was the only method by which we could hope to carry her on, and keep her alive until the parts grew more soft and yielding, or the labour become more vigorous.

"About nine or ten at night the flooding returned, but was soon restrained by giving a draught with fifteen drops of laudanum. She continued in this way for three days, the flooding returning four or five times, and abating on repeating the draught.

"At the end of this period, she was again attacked with another violent discharge, which did not abate as formerly. Finding the os uteri softer, and to appearance more yielding, I made a second trial, and at last with some difficulty dilated so effectually as to introduce my hand into the uterus, then breaking the membranes, I found a larger quantity of waters than could have been expected, considering the smallness of the child.

"To prevent the weak patient's fainting, from the sudden emptying of the uterus, I desired one of the assistants to press on her belly with both hands, and after I got hold of the feet of the child, I slowly brought down my arm which had kept up the waters, that they might be discharged by degrees, and at the same time desired the assistant to press a little more. The child being small was easily delivered; it came into the world alive, but died in a few hours after its birth.

"As the placenta did not follow by pulling gently at the funis, I again introduced my hand, and found it at the back part of the uterus, the inferior part of it adhering firmly, and feeling like a scirrhus substance: I therefore did not venture to separate it for fear of tearing the inner substance of the uterus; but only brought down that part that was already separated: for, some time before this, I had a patient who I imagined was lost by using too great force to separate the placenta in the seventh month.

"Although the violent discharge was much abated after the delivery, yet the patient seemed to be in great danger from repeated faintings, pale countenance, and low pulse: for these reasons I prescribed five drops of laudanum in a little burnt claret, applied a cloth dipped in vinegar on the abdomen with a long towel pinned round her body. We were obliged to keep her lying on her back, with her head and shoulders in a low position, for at least two hours before we durst venture to place her right in bed, giving her every now and then some broth out of a teapot, and likewise some more of the red-wine: we also repeated the same doses of laudanum a second and third time, in con-

sequence of which she at last fell into little dosing slumbers, and at last recovered from the most imminent danger.

"She continued in a weak condition for many days: that part of the placenta which was left behind, communicated a disagreeable and mortified smell to the discharges, and did not separate and come off before the fifth or sixth day after delivery."

Dr. Smellie was the more particular in describing every circumstance of this case, in order to shew young practitioners the difficulty and uncertainty of managing flooding cases, especially in the last four months of pregnancy, for they frequently stagger the judgment even of the most experienced practitioners.

CASE II. — "I was called by a midwife to one of her women, who had been attacked with a flooding for several days, and was then only in the seventh month of uterine gestation.

"The midwife told me that the patient had been blooded, and every thing done to restrain the discharge; but now it was increased to that degree that it had run through the bed; that she had undergone frequent faintings, every one of which it was feared would be her last: the midwife also informed me, that she had something like labour pains every now and then.

"The woman's pulse was low, her countenance pale, and indeed like one ready to expire. On examining, I found the os uteri open near the breadth of half-a-crown, and the breech and feet of the foetus presenting.

"I gave the patient five drops of laudanum in a little red-wine, and repeated the same every five minutes for three times; not daring to give more at a time, on account of her weak condition, as the flooding still continued. When she seemed to have a little straining I tried to bring on a pain, by stretching the os uteri with one of my fingers; this forced the membranes and waters down so strongly that I broke them; but finding, after waiting some time, that this had not the desired effect to restrain the flooding so much as I expected, I repeated the laudanum.

"As the woman continued to have frequent faintings and cold sweats, I told the friends that there was little hope of life, even if she were delivered, and gave my opinion, that perhaps she would expire in the attempt; but as they begged that I would try, and as it seemed the only method, and the last resource to save her from death, I stretched the parts gradually and delivered the foetus; but as it was her first child, it required a good deal of force to dilate the os uteri, and on introducing my hand through it, I felt it give way, and tear on the left side.

"The child was alive, and lived till next day: the placenta followed the delivery.

"The patient fell into a kind of dosing, and recovered contrary to expectation, considering the low condition she was in at the delivery.

"The laceration of the os uteri gave me a deal of concern. I had been formerly employed in a case, where the woman was not so weak, and by using great force, in order to save both mother and child, the os uteri was torn; the woman died soon after, from loss of blood as I then imagined, proceeding from the torn vessels of the uterus."

CASE III.—"A midwife sent for me on Sunday, about one in the morning, to a woman who was excessively weak and low, from a violent flooding. She had formerly been delivered by a gentleman of several children.

"The midwife at first informed me that she had been but lately called; that the patient had lost a great deal of blood, and was in the utmost danger from frequent faintings.

"The woman's pulse was so low that I could with difficulty feel its motion; a cold dampness overspread the face and extremities, and she could scarcely speak. On examining, I found the mouth of the womb largely open, the placenta lying over it, and the vagina filled with coagulated blood.

"I enquired of the husband, why he did not send sooner for assistance; but he made a frivolous excuse, about the person's being engaged who was to have laid his wife; being afraid, as I found afterwards, that if he had told me the truth, I would have refused my assistance until the other gentleman should be called again: mean while, he begged for God's sake I would do all in my power to save his wife. I told him the case was dangerous, and so much time already lost, that a speedy delivery was the only method left; though I was much afraid that she would expire in the operation.

"All present were convinced of the danger: I was moreover informed, that the patient had a small degree of flooding for several days; but that evening it had increased with greater violence, and was attended with some labour pains, which last had left her for more than two hours.

"There being no broth ready, I ordered an egg to be beat up with warm water, seasoned with a little salt, to which was added some red-wine: a little of this was given immediately. In the mean time I prepared every thing for the delivery, and desired the midwife to move the patient nearer the side of the bed, with her back towards it. During this alteration she again fainted; and indeed every one present imagined she would not recover from the swoon.

"When recovered a little, she in a low tone begged earnestly to be delivered, her strength being somewhat recruited. I introduced my hand into the vagina, and tried to reach the membranes in order to break them; but the placenta was over the mouth of the womb. I being afraid of tearing the after-burthen, slipped my hand, flattened, through the os uteri, and betwixt that and the placenta, until I reached the membranes, which I broke

through, by grasping them with my fingers ; then taking hold of the legs of the foetus, which were at the fundus uteri, I brought them down slowly into the vagina.

" The midwife was seated on the opposite side of the bed, on purpose to press with both her hands on the abdomen, to prevent as much as possible, the patient's fainting away, from the too sudden evacuation of the uterus. As there was a large quantity of water still detained, I desired that the pressure might be increased, when I withdrew my hand ; and although the head was at first downwards, it easily turned up to the fundus, when I brought down the legs.

" Finding the patient bore the operation without fainting, I removed the wet cloths above, and applied dry ones to the external parts : I ordered some more of the egg-caudle and wine to be given, and then with great ease delivered the child, which was dead. The secundines followed, being forced out by the weak effort of the woman, along with a large quantity of coagulated blood.

" When I introduced my right hand into the uterus, to deliver the child, I passed the edge of the placenta, at the patient's left groin, and found it adhering to the back part and right side of the under part of the uterus : this was an advantage, in consequence of which I got sooner to the membranes. That part of the placenta which was detached and over the os uteri, was of a dark livid colour ; the other, that adhered to the uterus, was fresh, and well coloured.

" After delivery, the flooding abated, and to appearance the patient seemed a little recruited, and lay pretty quiet for some time ; but in about an hour after, she began to have a difficulty of respiration, which gradually increased, with rattling in the throat ; at last she fell into faintings and convulsions, which soon closed the dismal scene, by putting a period to her life.

" The midwife, who was an old practitioner, and in good repute, told me, that the gentleman who formerly attended the patient in all her labours, had been called some days before, and ordered what he thought proper in such circumstances ; but the complaint increasing, and he being otherwise engaged, the midwife was sent for at his desire, on Friday night, when she found the patient had a small degree of flooding, which increased and diminished by intervals ; but as she found nothing like labour beginning, she desired her patient might still continue to take what was prescribed by her physician. She was again called next evening, when she found something like labour pains, the mouth of the womb a little open, and some soft substance like the placenta presenting. On this the doctor being again sent for, declared what presented was only a large coagulum of blood ; and went away, after ordering some other medicines.

"As the flooding continued to gain ground, the husband went for the doctor about ten at night, but did not find him at home. The hæmorrhage increasing, and the woman appearing to be in imminent danger, he went again about twelve, and found the doctor in bed, who said he could not go with him, because he expected to be called every minute to another patient, to whom he had been previously engaged. In a word, he could not be prevailed upon by all the entreaties the gentleman could make, so that immediately on the husband's return, I had received a call.

"After this information, the midwife proceeded with bitter exclamations, inveighing against the doctor for abandoning the woman, and leaving her in extremity, as he had done frequently in other dangerous cases.

"I have mentioned these circumstances as a warning to other female practitioners, and recommend their being in friendship with gentlemen of the same profession, who may be ready to assist in such dangerous cases, when they are otherwise engaged, both from motives of humanity and a regard for their own character. I understood afterwards, that the above gentleman thought himself above being in friendly correspondence with midwives, from too much self-sufficiency. In a little time after this occasion, he was, for neglecting a patient in the same circumstances, exposed, sued, and cast in a considerable sum of money."

CASE IV.—"A midwife sent for me to a woman near Westminster-abbey. She told me her patient was attacked in the beginning of labour with a discharge of blood, which was not violent at first, but as she found it increase, she desired my assistance. Before my arrival, the membranes had given way, and one of the child's arms come down into the birth. I understood the flooding had diminished, and that now there was but very little blood on the cloths.

"On examining all the cloths, I found there had been a good deal of blood lost; nevertheless, although the woman's pulse was low, she did not seem so weak as I expected. Indeed, before I examined the case, I ordered her to take some wine with her caudle, to strengthen and recruit her spirits.

"On trial, I found the arm lying double in the vagina, and the shoulder pressed in at the upper part. Being afraid if I delayed the delivery it would be more difficult to turn the child, I caused the patient, as she already lay in a supine position, to be brought down to the foot of the bed, the weather being cold, and that part nearest the fire-place.

"I ordered two assistants to support her legs, and, as it was not her first child, I easily introduced my hand into the vagina. There being a small quantity of waters retained in the uterus, from the shoulder's plugging up the os uteri, I with great ease

pulled up the arm and shoulder into the uterus, raised them up to the fundus, brought down the legs, and delivered the child, which was but small, the placenta following without any assistance.

"While I was employed in dividing the funis of the child, which was alive, one of the assistants told me that the woman was fainting away. I immediately gave her the child, and pressed on the abdomen of the patient with both my hands, having forgotten that precaution in time of the delivery; but instead of recovering from the fainting, she was immediately thrown into convulsions, and died instantly. Besides the pressure on the abdomen, every method of stimulating was tried to prevent the fatal catastrophe, as volatile salts, spirits, and burnt feathers, held to her nose, to quicken respiration; also frictions of the temples, arms, and legs.

"I reflected afterwards, that the fainting did not proceed from any new evacuation of blood after the delivery, as there was very little on the cloths, but from neglect of the pressure. As the flooding had stopped after the membranes broke, it perhaps had been safer to delay the delivery till the patient recovered more strength, or at least until the pains returned, which were gone off on the discharge of the waters; for the shoulder of the fœtus would have kept up the remaining waters until those efforts returned."

CASE V.—"A woman near Temple-bar, of a very weak habit of body, having been under great affliction for the loss of her husband, was suddenly taken with a violent hæmorrhage, upon which, a gentleman who had been bespoken to lay her, was sent for about four in the morning; but he being otherwise engaged, I was called about seven, and desired by an acquaintance that came for me, to make all possible haste to prevent the woman's being lost for want of proper assistance.

"In this emergency a midwife had been also called, who told me that the patient had some slight pains, and had not lost much blood; in which assertion she was contradicted by the attendants, as well as by the woman herself: they desired me to examine the cloths, where, indeed, I found a large quantity, and was informed that the midwife made slight of the affair, to prevent another being called.

"As I found the patient's pulse very low, and her countenance pale, I told the friends the danger, and desired them to send again to the other gentleman, as he might now be disengaged; but this was objected to, as it would take up too much time, especially as he lived at a considerable distance; they therefore begged I would not delay assisting the woman, who was in so deplorable a condition.

"On examining, as the patient lay on her side, I found the os

uteri fully dilated, the membranes, and part of the placenta, presenting. I introduced my hand in a conical form into the vagina, intending to break the membranes; that the waters, after being discharged, might allow the uterus to contract to the body of the child, and restrain the flooding; but the membranes were rigid, and in making an effort to lacerate them, my hand slipped easily through the os internum into the uterus, on the outside of the membranes. After having broken through them, I delivered the child and secundines, as in the former case, but in a slower manner. I ordered one of the assistants to press the abdomen with both hands in time of the operation.

"The child was alive, the hæmorrhage abated, and the patient, who bore the delivery with more courage than I expected, seemed at first to be in a good way; but having lost more blood than her weak condition could well bear, in a little time her pulse became low and creeping, and her extremities grew cold. I then ordered warm bottles of water, wrapped in flannel, to be applied to her feet, legs, hands, and arms, and supplied her frequently with chicken broth, which was then ready. I also prescribed a cordial mixture with confect cardiac. a spoonful of which was to be given from time to time.

"In consequence of these precautions, she enjoyed short, yet interrupted slumbers, and recovered, contrary to my expectation; but was several weeks so low, that she could not sit up. In about six weeks after, she was carried to the country, and recovered her strength by drinking asses milk."

CASE VI.—"I was called in the evening to a patient in labour, by whom my attendance had been bespoken. I found the os uteri rigid, and open about the breadth of half a crown. This trial being made in time of a pain, I waited till it went off, and the membranes being relaxed, I felt the head of the fœtus within them, resting above the ossa pubis; but between that and the membranes I felt something like the funis umbilicalis, lying backwards towards the sacrum, in two or three doubles. As she had not had a stool for two days, one was procured by administering an emollient clyster.

"Having waited till about ten at night, and finding the pains were but weak and seldom, I sent for a midwife, whom I kept on purpose to attend my patients in lingering cases, and desired her to put the woman to bed, in hope she would obtain some sleep; but enjoined her to send for me when the pains grew stronger, and before the membranes broke.

"About six in the morning, I was called in a great hurry, and not a little surprised when I came into the room to find the patient pale and fainting, the friends surrounding the bed all in tears, begging my assistance to save the woman's life.

"The midwife I left told me, the patient had slept a good deal

till about five, and had only waked now and then with the pains ; that there had been some shews, or a very small appearance of blood on the cloths ; but that all of a sudden she was attacked with a flooding in time of making water, which had almost filled the pot ; and that it still continued to pour from her in a large quantity.

“ On examining the cloth that had been applied to the parts, when the fainting began, I found very little blood ; the hemorrhage having been restrained in time of the deliquium. The patient recovering, and taking a little wine and water, I felt the os uteri largely open, the membranes pushed farther down, and part of the edge, or side of the placenta, at the left side of the os uteri. I also, with more certainty, distinguished the funis on the inside of the membranes, and the head in the same position resting above the pubis.

“ This case being uncommon, I was uncertain at first how to proceed ; but at last, considering with myself, if I broke the membranes to evacuate the contained waters so as to allow the uterus to contract, and restrain the flooding, the fœtus would be lost by the pressure of the head against the funis in time of delivery, I resolved, in order to prevent this misfortune, to turn the child, and bring it along in the preternatural way, which would give a better chance to restrain the one, and save the other, if the operation could be performed in a slow cautious manner.

“ As there was no broth ready, I ordered the whites of two eggs to be beaten up with a pint of warm water seasoned with salt ; this to be given the patient from time to time, with a little wine, to replenish the emptied vessels.

“ Having assigned to the midwife, and the other assistants, their proper stations, and prepared every thing necessary, I examined in time of a pain, which forced out some coagula of blood from the vagina, with a fresh discharge. As the patient lay on her left side, I kneeled down on a cushion behind, introduced my right hand into the vagina, and as the placenta was at the left side, I turned my hand so as to slide it gently through the os uteri, and up betwixt the membranes and right side of the uterus.

“ Having grasped and broken the membranes, I insinuated my hand within them, raised the head to the fundus, and turning the fore parts of the child to the back part of the uterus, brought down the legs into the vagina, allowing the waters to come off by degrees. Meanwhile I desired one of the assistants to press with the palms of her hands on the patient’s belly, and increase the pressure as the uterus emptied. The patient endured all this with great fortitude.

“ Having cleared away the wet cloths, and applied dry ones to the parts, I observed that the flooding was diminished, and rested more than half an hour. In the mean time I directed her

to take several times some of the above caudle. Finding her strength and spirits recruited, I delivered the child, which was small, with great ease, and the secundines followed.

"The pressure was continued on the abdomen of the patient, until a long towel was applied round her middle, and secured so as to do the office of a firm bandage.

"The child was very weak at first; but recovered. The mother continued in a low condition for many days, being supported with broths and cordials; but was able to get out of bed in three weeks."

CASE VII.—In this instance a woman in labour was attacked with a flooding, and the child delivered footling.

"The midwife, when called, was informed by the patient that her pains were but slight, and seldom; but she was much alarmed at some blood that came away every time, as there had been no appearance of any such complaint in her former labours.

"When the midwife examined, she found the mouth of the womb a little open; but could not distinguish any part of the child: and the woman being of a weak and delicate constitution, she told the friends the danger she would soon be in, if the discharge increased. On this information a physician being sent for, ordered an anodyne mixture; and as he was obliged to go out of town, desired them to call me, if the flooding did not go off, or strong labour come on.

"Soon after this, the patient was taken with violent and frequent retchings, which very much increased the flooding. On this I was immediately sent for; but being called in great haste from one labour to a second, the messenger could not find me, and went for another. In the interim I came home; and being informed of the message, reached the house before he could arrive.

"The labour pains by this time were gone off; the patient's lips and countenance were pale, the pulse had sunk, and she was attacked with frequent singultus. On examination, I found the os uteri largely dilated, the membranes and waters presenting, and something like the fingers and funis umbilicalis of the foetus within them.

"By this time the flooding was a little abated, on which it was proposed to send and prevent the other gentleman's coming, as he lived at some distance; but I told them, by no means, as the woman was still in the utmost danger, and it was very proper to have his advice and assistance, both on account of the patient, as well as to prevent reflections, and for the satisfaction of all concerned.

"By the time my brother accoucheur arrived, I had given her every now and then a little broth and wine to recruit her sinking spirits; and when he examined, he told me that he found these parts mentioned above, and likewise the head of the child for-

wards and resting above the ossa pubis. This I had not perceived; for as she lay on her left side, I had only examined with a finger of my right hand, which I could not turn above the pubes; but on trial with my left, I easily found the head resting above these bones.

"After consulting together, and considering every circumstance of the case, he at first proposed, as the flooding was diminished, to give the patient a paregoric draught, and wait with patience for the return of the labour: but soon after this, and before the medicine arrived, she was attacked with a violent fit of retching; which forced down a large coagulum of blood, attended with a return of the flooding, which ran over the bed.

"This sudden change altered our former resolution, and we now concluded that the only method to save the patient's life was a speedy delivery. Indeed I was of that opinion at first, on account of her weakness, as well as in respect to the safety of the child, as the funis had fallen down before the head.

"The side of the bed being wet, and at a distance from the fire, I had the patient turned to her back, and moved down to the feet. While two assistants supported her legs, I kneeled down, and with greater ease than I expected introduced my hand into the uterus, and delivered the child and secundines much in the same manner as in the former case; having taken almost the same precautions to prevent the patient's fainting away, and sinking under the operation.

"There was no appearance of life in the child: yet no part of it was livid, neither the lips, nor private parts; a circumstance which plainly shewed, that it had not been long dead.

"As the flooding was now stopped, we ordered the patient to take about a teacupful of broth every quarter of an hour or oftener to support her, and recruit the loss of so much blood; but not too much at a time, lest her weak stomach should be overcharged, and bring on again the retchings to which she was very subject (as the nurse informed us), even in time of health. We likewise directed her, if she should not get refreshing rest, or if the flooding should return, to swallow the paregoric draught already prescribed; in which were twenty drops of tincture of opium.

"By these precautions and proper attendance, she in eighteen or twenty days came to be in a good way of recovery, considering her weak and delicate constitution."

CASE VIII.—"One of my patients sent her coachman to me, desiring that I would go to his wife. He informed me that she had been in labour above twenty-four hours; that she had formerly easy labours; but now she was reduced so low by a sudden loss of blood, that he was afraid she would sink before I could reach the house.

"On my arrival, the midwife told me, that as soon as labour

began, the patient was taken with a small degree of flooding, which had gradually increased as the mouth of the womb opened; but that she had all along found an uncommon substance presenting, and had some hours ago desired the friends to send for a doctor; a proposal to which the woman herself would by no persuasions consent.

"She was to all appearance in a dying condition, nearly as described in Case III. under this head:

"On examining, I found the os uteri largely open, and the placenta over it; on which I signified to the husband and friends the great danger, declaring I was apprehensive she would expire in time of delivery; and that it was a great pity she would not allow assistance to be called for before it was too late.

"Her sister begged that I would deliver the child, as it was now the only chance to save her life; and if she should die, no person could be blamed.

"I used all the precautions as in Case VII. but in passing up my hand by the placenta into the uterus, I could not break through the membranes.

"I was therefore obliged to withdraw it, and push my fingers through the placenta; then I delivered the child in the preternatural way, on which the flooding stopped; but she was so weak that she expired in a few minutes.

"Yet, contrary to my expectation, especially as the placenta presented, and was torn through the middle, the child was alive."

CASE IX.—"A woman aged about thirty, who had been delivered of several children before, was taken with a violent discharge of blood from the uterus: she was immediately blooded; opiates and restraining medicines were prescribed.

"These restrained the hemorrhage a little; but it returned with more violence, and to such a degree, that when called again, I expected she would expire every moment.

"The midwife informed me, that something like labour was begun; on which I examined, and found the os uteri open about the circumference of a crown piece, and very thin.

"The relations of the patient all begged of me, for God's sake, to deliver her as soon as possible, to give her a chance for life, and not to let her womb be the grave of the child.

"I complied with their request, and delivered her much in the same manner as described in Cases VI. and VII. of this collection (pp. 320 and 322): but unluckily, when stretching the os uteri, which felt thin and rigid like a piece of parchment, the woman shrunk from the side of the bed, which obliged me to dilate with more force than I intended, to get my hand into the uterus; at which instant I felt the mouth of the womb give way, and tear at the side, so as to allow my hand to pass without further difficulty.

" The flooding diminished after delivery, on giving her fifteen drops of tinct. opii; but returned in two hours, and ceased again on repeating the same medicine.

" She slept pretty well all night, was next morning much recruited by the refreshing rest and nourishing diet; but soon after, was attacked with a violent hemorrhage from the vagina, by which she was in great danger of expiring immediately.

" This was checked by introducing into the vagina a sponge dipped in a solution of alum.

" To me it seemed probable, that this flooding might proceed from some of the large vessels being torn, that enter at the side of the uterus.

" She was long weak; but, by the assistance of the bark and a nourishing diet, recovered.

" The child was alive, and at the full time."

The following cases were sent to Dr. Smellie from gentlemen who formerly attended his lectures on midwifery.

CASE X.—A woman complained of a violent cough, which had continued eight or ten days, and was the occasion of bringing on a flooding, for which she had been blooded a few days before. She was of a thin habit of body, and fallow complexion, had a slow and weak pulse, which was now and then raised by fits of coughing.

That night she took ten grains of the pil. saponac. and next day she was considerably better both as to the cough and flooding. In the afternoon she was ordered to take two spoonfuls of a cordial and pectoral julap, frequently, the pills were also repeated, by which means she rested very well that night; but next day the cough and flooding returned, for which about ten ounces of blood were taken from her arm.

" When I first examined," says the writer of the case, " the os uteri was not in the least dilated; but this day, she having had some slight labour pains, it was open about the largeness of a sixpence. As she was costive, I ordered a clyster, which had its proper effect; and after that the following mixture:"

(No. 13.) R. Pulv. boracis ʒij.

Tinct. castor.

Tinct. croci aa ʒj.

Sp. lavend.

Sal. vol. oleos. aa gt. xl.

Aq. cinnamomi ʒj.

Aq. menthæ sativ. ʒvj.

Syr. croci ʒjss.

Capiat cochlear. ij. secunda quaq. hora.

" After this, her pains came on stronger and more frequent; but all of a sudden she was attacked with a violent fit of coughing, which again brought on the flooding, and forced down a large quantity of coagulated blood. In this emergency, I was sent for

in a hurry, and found the os uteri largely dilated, the placenta presenting, and several lobes of the same separated from the membranous part, and lying amongst the coagula that had been discharged.

"At this time she had no pains, and the midwife told me, that the waters had been come off about an hour before I arrived; this was about one in the morning. Finding her faintish, with scarce any pulse, and her extremities almost cold, with a clammy sweat upon her head and hands, I told the friends the danger she was in, and the necessity of delivering the patient directly. Having put her in a supine position, and ordered every thing necessary to be in readiness, as the placenta lay in my way, I first brought that away, then turned and delivered the child by the feet with great ease, till I came to the head, which, as it was large, stuck in the passage, until I introduced one of my fingers into the mouth, and depressed the lower jaw, which assisted the head to come along with great ease.

"On examining the child's body, I perceived it had been dead many days, from the livid appearance of the skin, but more especially from the scarf-skin being stripped off in several places.

"As the secundines did not follow the delivery, I again introduced my hand, and brought them down, with the remaining part of the placenta; and ordered the patient some ol. amygd. d. and syr. ex althæa, for her cough; also some ther. venet. with pulv. Gascon. to warm her, and promote perspiration.

"When I saw her next morning she was a little feverish; the lochia were in a small quantity, but her cough was much abated, and she had had tolerably good rest. To alluage the fever, and assist the uterine discharges, I ordered her to take repeated doses of the saline draughts, sweetened with syrup of poppies, which relieved her much, and by proper nourishment she recovered better than I expected."

CASE XI.—Mr. Mudge, of Plymouth, was called to a woman in the forenoon, about half an hour after eleven o'clock; and was informed, that as she was spinning in the morning at six, she found something gush from her with so much force, as made her suspect it to be the waters; but on looking on the floor, she found it was blood. She had continued flooding in that violent manner till he was sent for; she was come nearly to her full time, but had not felt any pain through the whole.

"The patient," says Mr. Mudge, "was lying on the bed; her whole body was pale, and had a livid appearance, covered with a cold clammy sweat, and without almost any pulse. I was shewed a chamber-pot three parts full of pure blood; and it was now pouring down in so great a quantity, that I imagined the only chance to save her life was a speedy delivery.

"After acquainting the friends of the imminent danger, I ex-

examin'd, and found the parts greatly relaxed, and the head of the foetus presenting to the birth, which I pass'd with my hand, to seek for the feet; but the first thing I met with was the placenta, quite detached, and lying loose in the uterus. This puzzled me at first, and made my coming at the membranes somewhat difficult and confused; however, I got to them, tore them open, and taking hold of the feet, brought them down to the passage, and soon finished the delivery. On introducing my hand to bring off the secundines, I found the uterus not contracted, but lying like a loose unelastic bag in the abdomen.

"The flooding stopped directly, and the woman seem'd much revived. I gave her twenty drops of laudanum in a cupful of mulled port wine; but not having a sufficient quantity of blood left in her vessels to carry on the circulation, and vital secretions, she died in about half an hour after delivery."

CASE XII.—Mr. Mudge attended another woman, nearly in the same circumstances as the former, with only this difference, that she had not lost quite so much blood.

"When she sent for me," says he, "I found her flooding very fast. She was come to her full time, but had no pains, nor any appearance of labour. I gave her an opiate, and desired her to keep quiet in bed. This was about eleven o'clock in the forenoon; and when I called again, about half an hour after one, the hemorrhage was not gone off, but rather increased.

"The former case was too fresh in my memory, to delay my assistance in this; I accordingly told the patient the great danger she was in, and that it was absolutely necessary to deliver her as soon as possible: with some little reluctance she consented.

"Having introduced my hand into the uterus, I was very cautious of keeping up the waters. On insinuating my hand through the membranes, I rais'd the head, turned the child, brought down the feet, and perfected the delivery in a very few minutes; the placenta was in great part detached. The mother did very well, and the child was a strong healthy boy."

CASE XIII.—A woman, who had bespoken the same gentleman to attend her in labour, was seized with a violent flooding, when seven months gone; on which account, he took ten ounces of blood from her arm, ordered her an opiate, and desired that she should keep quiet in bed. The hemorrhage abated, but returned next day, when it was again stopped by repeating the opiate, and giving her a course of saline draughts.

"For twelve or fourteen days," says Mr. Mudge, "the patient continued to have frequent returns of the floodings, which were as often restrained by the above methods; at which period, being sent for again in a hurry, I found the discharge violent, her pulse exceedingly weak, her countenance pale, her eyes sunk in her head, and to all appearance she was in a dying condition. I immediately gave

her a large opiate in a cordial draught, that it might have the full effect by the time the delivery was finished.

"As soon as every thing necessary was prepared, and the patient laid in a right position, I introduced my hand, and found the right arm of the child in the passage, which was easily and gradually pushed up into the uterus. This I found strongly contracted, the waters having, as they informed me, gone off three days before. With my hand I gradually dilated, until I reached the feet at the fundus, and bringing them down with some difficulty, I finished the delivery in the usual manner, after giving the proper turns, that the fore parts of the body should be towards the sacrum. I also had some difficulty in delivering the placenta.

"The woman recovered; but the child died in a quarter of an hour after it was born."

CASE XIV.—This is a fourth case of flooding, from Mr. Mudge, in which the placenta presented.

"A woman," says he, "being seized with a flooding in the morning, sent for me in the forenoon: she was come to her full time, and a week before had some appearance of the same kind.

"She had no pains; her pulse was high and quick. I immediately took blood from her arm, ordered an opiate, and some saline draughts. The discharge soon abated, and she remained without any appearance, till seven in the evening, when I was called in a great hurry by a servant, who said her mistress was dying, and was met by another in the way, repeating the same exclamation.

"On my arrival, I indeed imagined the patient was just a-dying; her pulse was so low, that it could scarcely be felt to move; her face and arms were covered with a cold sweat; her eyes had lost their lustre, and the blood was pouring from the parts.

"As nothing but instant delivery could give her the least chance, I informed the husband of the circumstance. He consenting, I then seated myself, and having introduced my hand into the vagina, found the os uteri much to one side, and so little dilated, that I could scarce introduce my fore-finger; but by stretching the same gradually, and slipping in one finger after another, I at last dilated it so as to receive my whole hand. The first thing I met with was the placenta fixed to the mouth, and anterior part of the womb, but separated on the back part: I broke through it, tore open the membranes, and taking hold of the feet of the child, brought them down to the passage, and with great ease finished the delivery; but in the hurry to save the woman's life, one of the child's arms was broken, which I afterwards reduced; and it proved a stout hearty boy.

"The patient recovered, contrary to the expectation of all present; and both she and the child, I am persuaded, must have inevitably perished, if this method had not been taken, or even if it had been longer delayed.

"I again repeated the opiate in a cup of mulled wine; notwithstanding which, in about five or six minutes after, a fainting fit had nearly carried her off. To prevent any further discharge, which, though trifling, she now could not bear, I ordered cloths, dipped, and wet with vinegar, to be applied to her back, and over the belly. The woman was of a thin habit, and tender constitution."

CASE XV.—Another of Dr. Smellie's correspondents attended a woman aged forty, who being seven months gone with the seventeenth child, was threatened with a flooding. For this she was blooded, and confined to her bed for four weeks; after which the hemorrhage returned, and continued, though not violently, for two days: on the third, at three in the morning, the blood came away in a torrent, and overflowed the whole bed.

When he arrived, which was about five, the patient was faintish, with scarce any pulse to be felt; on which he intimated the great danger, and that it was absolutely necessary to deliver the child as soon as possible.

When every thing was prepared for that purpose, he examined, and found the os uteri not sufficiently dilated; however, he got hold of a foot, and pulled it down, without searching for the other, and delivered the child with great ease, having neither been obliged to bring down the remaining leg nor arms.

The child was large and healthy, according to the woman's time of reckoning; the hemorrhage, though not violent, continued two days longer, and the mother recovered.

CASE XVI.—Another practitioner was called to a woman in the eighth month of her sixth child, who had been subject to floodings for two months before. The nurse shewed him the bed-pan, in which was about two pounds of coagulated blood, and on examining the patient, the vagina was full of the same; the os uteri was lax, and open about the breadth of half a crown; but he was at a loss at first to know what presented.

As the patient was excessively weak, faint and low, he was afraid she would expire under his hands. He told her friends that the only way to save her life was a speedy delivery; however, he tried to raise her spirits with gentle cordials; a clyster was also administered, with a view to assist the pains, which were but trifling; and when it operated, the coagula were forced from the vagina.

As the flooding still continued, he had the patient placed in a supine position, and having introduced his hand into the vagina, found the placenta presenting; after which, with great ease, he dilated the os uteri, slipped up his hand on the outside of the membranes, and with some difficulty tore them asunder. Although he found the head of the child presenting, he durst not, as the woman was lying like a corpse, wait for a natural delivery, but immediately turned the fœtus, brought down the feet, and with little difficulty

delivered the body and head, which were very slippery and flabby, the child appearing to have been dead several days.

He with some difficulty separated the placenta from its adhesions, and was agreeably surprised that there was no sensible flooding: all present were delighted to find the patient so sensibly recovered, and cheerful after delivery.

He ordered a gentle opiate to allay the after pains, which had the desired effect; the lochia were sufficient, and, in short, every thing was to his wish; but a fever intervened, with irregular horrors and rigors, attendant with singultus, delirium, and, in spite of all endeavours, she died on the fourth day after delivery.

Women attacked with Convulsions; the Children delivered in the Preternatural Way.

CASE I.—“A midwife sent for me in the morning,” says Dr. Smellie, “to a patient whom she had attended all the foregoing night; and who, without any accident, or previous warning, was all of a sudden thrown into convulsion fits. At first they only returned every two or three hours, but afterwards more frequently. The woman had all along been stupid and senseless.

“The woman had told me, that the patient was in the beginning of the ninth month of pregnancy; that she formerly delivered her, when she had an easy time, and no such complaint; that the mouth of the womb was a little open; but she had not found any thing like labour pains.

“Soon after I came, she fell into a fit, during which I examined, and found the os uteri a little open, and that the convulsion seemed to act with the same kind of effort as a labour pain. As her pulse was full, I ordered ten ounces of blood to be taken from her arm, and a blister to be applied to her back. No medicine could be given internally, as she could not swallow any kind of nourishment since the first attack.

“In about four hours I was again called, on account of the convulsions recurring more frequent and violent; and found the os uteri softer, and much more open. Although, as before observed, there was no appearance of labour, yet the violence of the agitations, and strainings in time of the fits, might have proved sufficient to deliver the child; but I was afraid it was dangerous to allow the convulsions to go on longer; and was persuaded that a speedy delivery was the only probable method to save the patient, as well as the foetus.

“After informing the friends of the danger, and the necessity of relieving the woman by delivery, and having placed the assistants to keep her in a firm position, I with great ease introduced my hand through the os uteri, broke the membranes, turned the child, and delivered it by the feet.

“The child was alive, and the mother had not another fit after the delivery; but she remained stupid and senseless for three days,

then became gradually more and more sensible, and would not believe for some time that she had been delivered."

CASE II.—"The same, or the following year, I was called to a poor woman near the Seven Dials; and was told by the midwife, that the patient was come to her full time, that labour was just begun, and at every pain she was thrown into a violent convulsion fit.

"The pains were not frequent, she was sensible between the fits, the os uteri was a little open, and the head of the child presented. As her pulse was quick, I ordered twelve ounces of blood to be taken from her arm, and a large blister to be applied on her back, betwixt the shoulders; a clyster was also administered, which gave her a plentiful passage.

"This was in the morning, and I desired the midwife to send for me if the fits did not abate, or returned with greater violence. In about two hours after I left the house, they again sent for me; but being then engaged with one of my own patients, I sent one of my oldest pupils, and desired him, if the convulsions did not abate, to deliver the woman immediately.

"At first he found the patient in a dozing or comatose way; but soon after she was attacked with a violent convulsion fit: he told her friends that it was absolutely necessary to deliver her immediately, and that I had recommended this method to save her life, which was in imminent danger: the midwife was of the same opinion; but the woman's husband and sister would not consent, or allow him to do any thing until I could come to her assistance.

"On my arrival in the evening, I found the patient was in a comatose state, and now quite insensible; the fits more frequent, with tremors and subultus. On this I told the friends the uncertainty of saving her, and was sorry to find that they had prevented the gentleman from assisting before it was too late.

"They now begged that I would do all I could to save the woman, and allowed me to send for some more of my pupils: the gentleman who was with her in my absence, told me, that the convulsions had dilated the os uteri a little every time; however, it being her first child, it required some force and time before I could stretch it so as to pass my hand into the uterus: this being effected, and having broken through the membranes, I brought down the legs, and delivered the child; but have forgot whether it was alive or dead.

"This case was not so fortunate as the former, for although the placenta came easily along, and the uterine discharge was sufficient and moderate; yet the convulsions were not restrained; but becoming more frequent and violent, carried her off in two hours after delivery."

CASE III.—"I was sent for by a midwife, who told me that her patient's labour had gone on exceedingly well until the waters

came off; but soon after that happened, she was attacked with strong convulsions, which went off, and returned every time when a labour pain began to come on.

"The os uteri was sufficiently dilated. The head of the foetus presented at the brim of the pelvis. The woman's pulse was very quick, and her face uncommonly florid: on which account twelve ounces of blood were taken from her arm. But finding this avail nothing, and the convulsions growing more violent and frequent, and the head not advancing in the least, I thought it most expedient, in this uncommon case, to deliver by turning the foetus; which I easily performed, as the waters were not all discharged from the uterus.

"The child was alive, and the woman had not another fit after delivery."

CASE IV.—"A young woman, come to her full time, was taken with violent convulsions when she fell in labour; for which she was immediately bled, and a clyster was given, which had the desired effect. Nervous medicines and opiates were also administered; the last to allay the pains that seemed to bring on the fits; for every time a labour pain came on, she was thrown into convulsions.

"The os uteri was open about the breadth of a crown piece, and a hard unequal substance presenting, at first made it uncertain what part of the child presented.

"She was ordered to drink plentifully of weak green tea, and barley water with some nitre, sweetened with syrup of althea. In about three hours after this prescription the os uteri was much more dilated, and on examining, I found that the forehead and eyes of the child presented; the violence of the fits had abated after the bleeding and the opiate; but were now grown stronger, and more frequent.

"In these dangerous circumstances, dangerous both from the convulsions and bad presentation of the child's head, I thought it was wrong to delay the delivery any longer. All present being made sensible of her situation, I had the patient kept firm in bed in a supine position, and gradually dilated the parts, which required time, and a good deal of force; but as the waters were all gone, I could not alter the position of the head; on which, and not without a good deal of force also, I brought down the feet of the child, and delivered, though not without greater fatigue than I expected.

"The child was alive, and, as in the former case, the woman had not any more fits after the delivery. She soon fell into a sound sleep, and recovered.

"When I first introduced my hand into the uterus, and found it strongly contracted on the body of the child, I knew it would require great force to turn it: supposing that the wrong presenta-

tion prevented the head from coming along, I made the trial to turn down the vertex; but that failing, I delivered in the preternatural way."

Preternatural Deliveries, in which the Membranes were broken, the Waters evacuated, and the Uterus was closely contracted to the Body of the Fœtus.

CASE I.—"Being called," says Dr. Smellie, "to a woman in St. Alban's-street, I was told by the midwife, that a great quantity of waters had come off suddenly; and as the child did not present fair for the birth, she had desired my assistance.

"On examining, I found the hands and feet presenting, and come down into the vagina, together with the funis umbilicalis, in the arteries of which there was a strong pulsation. This last circumstance I did not mention, because this being the woman's first child, I did not know whether it could be saved in the delivery. I had learned by experience, that if the child is mentioned to be alive, and afterwards perishes in the birth, the mother grieves, and imagines it is lost by the unskilfulness of the practitioner.

"As the patient was then in bed, and lying on her left side, I tried to deliver her in that position; but being prevented by her flying from me, I was obliged to turn her on her back, and across the bed, with her breech to the side, and her legs supported by two assistants.

"Having confined her to this advantageous position, I gradually introduced my hand into the vagina, and in a flattened form slipped it up backwards, between the sacrum, and those parts of the fœtus that presented, into the uterus: there I found the breech lying to the left, and the head at the right side; but not so low as the breech.

"As the legs were lying double in the vagina, by hooking two of my fingers on them, I brought them and the thighs down, and the child being small, the body and head were easily delivered, by which the child was saved, and the mother relieved from danger. The placenta separated, and was soon after forced down into the vagina by the after pains."

CASE II.—"I was called to a case, in which the child presented nearly in the same manner as the former, only the funis was not fallen down into the vagina; but after the body was delivered, the head of the child stuck at the brim of the pelvis, on which I made several trials to bring it down into the vagina; but finding the child was alive by the pulsation of the arteries in the funis, I was afraid of overstraining the neck, if I repeated these trials and increased the force.

"The patient being in a supine position, I introduced a blade of the long forceps, that were curved to one side, up along each

side of the pelvis, while an assistant held up the body of the child to give more room for their application; and having fixed them on the head, and joined the blades of the instrument together, I introduced two fingers of my left hand, and fixed them on each side of the child's nose, while my right pulled the head with the instrument, and delivered it safely.

"These two successful cases gave me great hope that the above method would be of great service to save the lives of many children, who are generally lost by over-straining the neck in delivering the head; but a third, in which I failed, shewed, that we ought never to trust too much, or be over sanguine, with respect to any particular method of practice; but vary the same as we find it necessary.

"However, although I have not had an opportunity of making any more trials of that kind; yet as I succeeded twice, the practice is advisable; especially when we are certain, that the child is alive from the pulsation of the funis, or motion of the body, or would prevent overstraining the neck, or avoid using the crotchet."

CASE III.—"I was called to a woman in labour; the waters had come off long before, and the midwife had tried to deliver the child; but failing in the attempt, had again folded up the legs and arms into the vagina along with the funis, with a design to keep them warm till I arrived.

"As the patient was in bed, and lying on her left side, I sat down behind her, and found in time of a pain the funis pushed down, without the os externum, and there was not any sensible motion in the vessels.

"This not being the woman's first child, and the midwife having also sufficiently dilated the passages, I with great ease introduced my left hand along the back part of the vagina into the uterus, and found the head of the fœtus above the pubis, a little to the right side: the breech was to the left side, and higher than the head.

"I brought the legs down from the vagina, and wrapping them in a cloth, tried to pull down the thighs and body; but the head being so low prevented their descent: finding the fœtus large, I turned the woman into a supine position as in the former case.

"I then took hold of the legs with my right hand, and introduced my left up the right side of the pelvis to the head of the child, and while I pushed it up to the fundus uteri, pulled down the legs further: by which method the breech was brought lower, and the head prevented from returning to obstruct the delivery of the body. When the thighs were brought without the os externum, I turned the fore parts of the child backwards; but afterwards it required a good deal of force, when the body was brought out, to deliver the head; and indeed if the child had been alive, it would have run a great risk of being lost, from the overstraining of the neck."

CASE IV.—"I was called to a woman who had been long in labour, and was told by the midwife who attended her, that after the membranes broke, she felt something like the head of the child; but when forced lower down she found it some other part.

"On examining the part that presented, it felt very much like the shoulder blade, but on the midwife's informing me that some of the child's purgings had come down on the cloths, and examining a second time, I found it was one of the hip bones.

"Being informed this was not the woman's first child, and finding her much exhausted with the length of the labour; that the parts had been largely dilated by the midwife before I arrived; and learning, on enquiry, that her former labours had been quick and easy, I thought it was pity to keep the patient longer in that distressed condition.

"Having ordered every thing necessary for the delivery to be in readiness when wanted, I had the patient firmly secured in a supine position, and on introducing my hand found the left hip presenting, the shoulder and head near the fundus uteri, to the right side, and the legs and arms backwards.

"This examination being made, in a slow and gentle manner, I first tried to bring down both legs; but finding them entangled with the funis, and the child alive, I could only bring down the left foot, which was the lowest; this being very slippery, and the uterus strongly contracted, my hand was so cramped that I was obliged to grasp the foot between two of my fingers to bring it without the os externum.

"I afterwards brought down that leg and thigh, and tried to bring the other also; but was prevented by a strong pain that forced down the left hip into the pelvis; upon which I introduced two fingers of my right hand, and hooked them in the back part of the child's right groin. Another pain coming on, by pulling at the left leg with my left hand, and at the above hold with my right, I delivered the child safely, as described in the breech cases.

"The child lay some time before it began to breathe, but at last recovered, to the great joy of the mother, who had lost all her three former children in the small pox."

CASE V.—"The head, in this case, was to the right side of the uterus: the breech on the left, near the fundus, with the arms and legs backwards, as in the former case; but as the uterus was not so strongly contracted, some of the waters still remained. I grasped the body with my left hand, and raising the head and shoulder to the fundus uteri, by which the breech was brought to the lower part, the legs with great ease were grasped and brought through the os externum.

"In the mean time, the patient begged hard that I would do all in my power to save her child.

"The midwife informing me, that the woman had lost one formerly which came in the wrong way, and I, finding that the child was alive by the motion of its legs; and that although it was not uncommonly large, the pelvis was narrow; resolved to proceed with great caution, and do all I could to save it.

"The patient was in bed lying on her left side: but on this information I had her moved into the supine position. Having brought down the body and one arm of the child which lay before the face, I introduced two fingers of my left hand into the mouth, and the fingers of my other over the shoulders; then trying to deliver, I could not move the head down after several gentle efforts in this manner. I let go my hold of the under jaw, and tried Daventei's method, by pressing down the shoulders to bring out the occiput from below the os pubis; but this failing also, and finding there was still a pulsation in the funis, I resolved to try the forceps.

"I now desired the midwife to hold up the body of the child so as to give me more room for introducing that instrument: but it being too short, and the head above the brim of the pelvis, I could not fix them properly so as to render them of any use to assist the delivery.

"This method failing, and the pulsation of the funis beginning to grow languid, I again took hold of the child as at first: but finding the under jaw like to be over-strained, I fixed a finger on each side of the nose, and standing up in time of a pretty strong pain, I exerted a good deal of force: as the forehead of the child was backwards above the projection of the upper part of the sacrum, I had already turned it to the right side, to give more room for the head to come down.

"Failing in this last attempt, I rested a little till another pain should return; but they being weak and seldom, and finding the pulsation at a stand, I again exerted greater force, by which I at last got the head delivered.

"Every method was tried to recover the child, but all to no purpose: a miscarriage which was very grievous to the disconsolate mother."

CASE VI.—A gentleman called on Dr. Smellie, when he was engaged with a patient, and desired him to come as soon as possible to his wife's assistance, giving him to understand that as she was stepping into bed the waters had come off without any previous warning.

"I desired him," says the doctor, "to send for the midwife who attended in her former labours; telling him, that I expected this labour would soon be over; and that I should come some time enough to assist his wife if there should be occasion."

"The midwife accordingly was sent for, and arrived just in time to shift the patient, and put her to bed by the time I reached

the house : she told me that on examining she found a foot lying in the vagina ; but I perceived it was an arm lying double, and I brought the hand through the os externum, to convince the midwife that it was not the part she imagined.

" Although there had been no labour pains that the patient thought were worth noticing, yet the parts had been so dilated before the membranes broke, that I easily introduced my hand into the uterus, and found the child's head above the ossa pubis, the fore part backwards, and a little to the left side.

" After disentangling the funis umbilicalis, I brought down both legs ; but finding I could not bring the feet further than the lower part of the vagina, I slipped a noose over them, as described in my treatise of midwifery ; then taking hold of the fillet with my right hand, I introduced the other to the head, and pushed it up, while I pulled down the legs with the noose : by these means the head was raised to the fundus, the arm that was down returned into the uterus, and the child was safely delivered.

" I delivered this gentlewoman once before, when the case was much the same, and of several children afterwards : her belly was somewhat pendulous ; and it was remarkable, that if the membranes broke while she lay in bed, the head of the foetus presented ; but when in a sitting or standing position it slipped over the ossa pubis, and the arm came down into the vagina. One lucky circumstance attended these, for after the membranes broke, the shoulder filled up the os uteri so exactly, that there remained a sufficient quantity of waters ; by which the delivery was easily performed."

CASE VII.—" I was called by a midwife to a woman where the arm of the child was come down and lying double in the vagina. As the waters were not all come off, but kept up by the shoulder in the os uteri, I first tried to raise the arm, and bring down the head so as to present in the natural way.

" I made this trial on finding the pelvis narrow, the pains strong, and the woman not weakened with the length of the labour ; but failing in this attempt, I raised the head and shoulder to the fundus uteri, and after bringing down the legs and body, tried again and again to deliver the head in the safest manner.

" Finding there was still a strong pulsation of the arteries in the funis umbilicalis, and being afraid of losing the child by overstraining the neck ; although I had failed with the short, straight forceps, as in Case V. yet I resolved to try a longer pair, that were curved to one side, to suit the curvature of the os uteri."

" They were contrived some years ago by myself, as well as other practitioners, on purpose to take a better hold of the head when presenting, and high up in the pelvis ; but I did not recommend their use in such cases, for fear of doing more harm than good, by bruising the parts of the woman, when too great force was used.

"The patient being in a supine position in bed, and two assistants supporting her legs, I found the forehead of the child was backwards, but a little to the left side of the lowest vertebra of the loins, which jettied forwards with the upper part of the sacrum, and gave more room for applying the forceps: wrapping a cloth round the body of the fœtus, I raised it towards the abdomen of the patient, which an assistant supported in that position.

"Being properly seated, I introduced my right hand up the left side of the vagina, till my fingers reached the left side of the child's face. Then with my left hand I insinuated a blade of the forceps up to that part. As I withdrew my right hand to make more room, I slipped the blade further, that the end of it might reach as high as the upper part of the child's head: then I moved it towards the left groin of the patient, that the blade might be over the left ear, which was at that part: the part of the blade that was bent to one side, was to the pubis; and the convex part was backwards to suit the concavity of the sacrum.

"My left hand was next introduced up the right side, betwixt the sacrum and ischium, and along on the inside of my hand the other blade in the same cautious manner, over the right ear: having locked them together, I introduced a finger of my left hand into the child's mouth, to keep the face from turning upwards; then pulling the handles of the instrument with my right, and increasing the force, I brought down the forehead past the narrow part of the pelvis, and turning it backwards to the concavity of the sacrum, brought the head through the os externum, by pulling upwards over the pubis, to prevent a laceration of the perineum.

"There was a small impression made by the forceps on the scalp, which dispersed soon after: the child was strong and healthy; and although I used a good deal of force, the mother recovered without any uncommon complaints.

"Since my success in this case, I had another of the same kind, in which the child was saved by the same method. Vide Case II. under this head.

"Another occurred in the course of the same year, in which that trial failed on account of the uncommon largeness of the head, and the smallness of the pelvis; there I was obliged to withdraw the forceps, and extract the head with the crotchet."

CASE VIII.—"Early one morning I was called to a woman at some distance in the country. The membranes had broke the night before: the arm presented pretty much swelled, and part of it without the os externum. Finding it was the left, I informed those who were present of the circumstances, in order to anticipate all censure, in case the child should not be delivered alive.

"The woman was laid across the bed in a supine position, two

assistants supporting her legs, and another on the opposite side, to support her head and shoulders, and prevent any obstruction from her hands and arms in time of the operation.

"With much difficulty I introduced my left hand betwixt the swelled arm and the back part of the vagina to the armpit; but it still required a good deal of force to raise the shoulder and head to the left side of the uterus, so as to allow room for my hand to pass on the right side along the breast of the foetus to the fundus, where I found the knees; then hooking my finger in the hams, I brought down the legs into the vagina.

"As the fore-arm was still in the vagina, I could not fix the nose over the ankles, but was obliged again to introduce my hand, and, by pushing up the shoulders and pulling down the thighs alternately, I at last with much fatigue raised the body higher. The arm being removed out of my way, I brought the legs without the os externum: the pelvis being large, the body and head were easily delivered. The swelling of the child's arm gradually subsided, by the application of fomentations and cataplasms; but for several days it could not move that limb.

"One of the assistants told me, that finding the midwife pulling with a good deal of force, without being able to deliver the child, they were alarmed, and would not allow her to repeat those efforts till I came; they supposed therefore this was the cause of the arm's being swelled so much when the child was delivered."

CASE IX.—"I was called to a woman at the distance of eight miles from the place where I then lived; she was excessively weak, could scarcely speak, and seemed to be in a dying condition.

"The midwife told me apart, that the patient had been in labour two days; that when the waters came off, the child descended to the passage; that as she could not after many trials deliver the body, they had sent for a gentleman famous in that part of the country for the practice of midwifery; that after many efforts, and waiting several hours, he told the friends it was absolutely necessary to take off the arm to make more room for the delivery of the child; that she had greatly assisted in helping him to twist it off from the shoulder, and made a great merit of helping the gentleman.

"She informed me also, that the patient had lost a great quantity of blood all the time of the operation; that all possible means had been used to separate the mother and child, but as her time was come, all was done that could be done by any mortal.

"On examining the arm which the midwife brought out from under the bed, and observing it was not much swelled, I desired she would never boast of assisting in such an operation, especially as it had done no service in forwarding the delivery.

"The gentleman, who lived about four miles from the place,

had left the woman before I was called, and desired to be sent for when the pains returned, that he might then deliver her; promising in the mean time to send her a cordial julap.

"The friends, after this information, begged of me to deliver the woman if possible, and not let her go to the grave with the child in her womb. I told them that in all appearance she would very soon expire, and as the child was certainly dead, it was a pity to torture her any more; but as they were so importunate, and as there might be a chance of recovery, contrary to all expectation; and considering that even though she should expire in time of delivery, it might be serviceable to the public to expose an ignorant pretender, who had acquired a great reputation, even in spite of several such blunders, I resolved to comply with their request.

"Having ordered the woman to be put in the same position as described in the foregoing case, I expected it would require a great deal of force to turn the child; but was happy to find, on introducing my hand into the uterus, that the resistance was inconsiderable. I raised the shoulder to the fundus, brought down the legs, delivered the child, and the placenta; which last being already detached, followed the body with a large coagulum of blood adhering to it: this lax state of the uterus seemed to proceed from the great weakness of the patient.

"Although before delivery the woman seemed to be insensible and comatose; yet after being roused by the unexpected news of the child's being born, her drooping spirits revived, and she was able to express her thanks for my relieving her. All present were agreeably surprised to observe how easily the operation was performed, and sufficiently convinced of the ignorance of the other practitioner.

"I immediately ordered a little caudle to be given frequently; but although the flooding was now abated, she was so much weakened and exhausted with the length of the labour and great loss of blood, that she died the same night, in about two hours after I left the place.

"Some years before this incident, when I first settled in practice, a woman who had formerly been delivered of several children, was taken in labour; the midwife being intoxicated with liquor, I was sent for, and found the arm of the child come down into the vagina: the patient had been many hours in labour, and a flooding had begun, but was abated after the waters were discharged.

"I proposed to deliver by turning, and bringing the child by the feet; but that being a new method, and not known in the place, the midwife and assistants opposed it, and sent for an older practitioner, who undeservedly had also acquired some reputation in that branch; but instead of turning, he fatigued himself and the woman, by pushing up the arm to bring the head to present,

and when that method failed, he tried to deliver by pulling at the arm.

"Another gentleman was called who lived at a much greater distance than the former; but the flooding had increased so much by the former violence, that the patient expired before his arrival. As he knew more of the practice, he regretted much that the method I had proposed was rejected."

CASE X.—"Being called to this patient, and examining, I found no part of the foetus; but after placing her in a supine position, and introducing my hand into the vagina, I felt through the integument the haunch-bone and the ribs: insinuating my hand further into the uterus, I rested a little, and slowly examined the position, so as to be able to take the safest and easiest method to come at the legs, and turn the body of the child."

"Finding the arms and legs lying double, and forwards, and the ossa pubis of the mother preventing my hand from taking hold of the feet, I turned her from that position to her left side, and on introducing my hand reached the feet, which were easily brought down, and the child was delivered:

"The woman had been two days in labour before I was called. She recovered, but the child was dead: as I forgot to examine the funis when the body was brought down, I could not determine whether it was dead before, or lost in delivering the head, which required great force in the extraction."

CASE XI.—"I was called to a woman who had been long in labour, and on examining, found that either the shoulder or haunch presented. As she lay on her left side, I tried to introduce my hand into the vagina, in time of a labour pain; but on her flying from me, and not keeping in that position, I was obliged to turn her on her back, pretending that a supine position would assist the pains and the delivery.

"The friends present informing me of her unmanageable disposition, I had her firmly held by three strong women. Then I introduced my hand, and felt the left haunch presenting, with the fore parts of the foetus to the right anterior part of the uterus.

"Finding, as soon as I insinuated my hand into the womb, that the patient lay quiet, and did not make such violent efforts to move from me, and that in this position the pubis prevented my arm and hand from turning upwards and forwards, so as to take hold of the feet, I desired the assistants to turn her again to her left side."

"During this movement, I durst not venture to withdraw my hand, lest she should renew her violent efforts against me, and repeat the cries of murder, with which she had alarmed the neighbourhood.

"Her breech being a little over the side of the bed, a pillow betwixt her knees, which were raised up to her belly, and kept firm in this advantageous position, I stood behind her, and began the operation; the pubis did not now prevent my hands going up

to the fore part of the uterus; but the womb being strongly contracted, I could only bring down one of the legs into the vagina. By fixing a cloth round the ankle, I moved the child with its head up to the fundus; and being but small, it was easily and safely delivered."

CASE XII.—I attended a patient to whom I had been bespoken, in the next year; the membranes were broken, and a large quantity of waters discharged before my arrival. The arm lay double in the vagina, and the os uteri was sufficiently dilated.

"Having placed her in a side position across the bed, I by degrees opened the os externum, which, as it was her first child, required some time, by dilating it a little every pain. At first imagining the fore parts of the child were to the back part of the uterus, I introduced my left hand along the back part of the vagina, and in pushing up the arm and shoulder into the uterus to search for the feet, I found my mistake as to the position, and that they were at the fundus and anterior part.

"Having withdrawn my left hand, I introduced the right, and raising again the parts that presented, I pushed up my hand at the fore part of the uterus, where I found the legs, arms, and funis, entangled with one another, that I could not disengage them with my fingers so as to take hold of the feet. This difficulty, joined with the contraction of the uterus, which I did not expect would happen so soon, when the membranes were so lately ruptured, so cramped my hand that I was obliged to withdraw it once more.

"By these repeated efforts to force up the body, the placenta had been squeezed and loosened from its adhesion in the uterus, and a flooding was brought on. Observing this symptom, and considering that no time should be lost, I made a second trial in the same manner, as soon as my hand recovered its former strength; but finding the same difficulty, I desisted from attempting any more to deliver in that position.

"Having turned her on the bed, to her knees and elbows, with her breech high and shoulders low, and she being supported by assistants in this position, I again introduced my hand, and found the contraction and pressure so diminished, that I at last, though with a good deal of difficulty, got one of the feet betwixt my fingers, and brought it down to the vagina. By pushing up the body and pulling down that limb alternately, the child was safely delivered; the placenta followed, and the flooding ceased."

CASE XIII.—"A midwife sent for me to a woman in labour; she told me that the membranes broke soon after her arrival, and suspecting that neither the head nor breech presented, she had desired the husband to send for further assistance.

"As the patient was lying on her side, I examined, and was of the midwife's opinion; but uncertain what part of the child's

body was over the os uteri. She evaded my efforts in that position, therefore was turned to her back. Her breech was brought down to the foot of the bed, while two women supported her legs, and kept her firm, to prevent her flying from me in time of operating.

"On introducing my hand, I found the middle of the back presented; and that the shoulders were to the right side of the uterus. These I first tried to raise to the fundus; but as I endeavoured to come at the breech to pull it down from the other side, the shoulders returned.

"Finding, after repeated trials, that this method did not succeed, I slipped up my hand along the back part to the fundus, where I found the feet, and as I pulled them down, the back turned upwards; after which the child was soon and safely delivered."

CASE XIV.—"I was called early one morning to a woman who had strong labour. The membranes had been broken the night before; although the midwife found the funis come down, and the child presenting wrong, yet she concealed these particulars, pretending that every thing was right, that it must take a long time to deliver the child, and she would not allow any assistance to be called for, until the friends insisted upon having further advice.

"When a pain came on, I examined, and found the funis come down without the os externum, pretty much swelled, without any pulsation; then following it up into the vagina, I felt its adhesion at the abdomen, and told the friends, that the child presented in a wrong position, and was not alive. Hearing this declaration, they abused the midwife, and were about to expel her the house, if I had not interceded in her behalf, that she might assist the patient after delivery.

"As the patient lay on her left side, and the parts had been largely dilated, either by the midwife, or membranes before they broke, I with great ease introduced my hand, and felt the fore part of the thighs at the left side of the uterus; and tracing up higher, I got hold of the legs, which I could not then bring down, because of the great contraction of the uterus.

"My hand being cramped, I brought it lower, and after resting a little, tried to push up the breast and bring down the thighs; but this did not alter the position of the child sufficiently; and the patient not being kept properly in the side position, I was obliged to turn her to her back; then introducing my hand along the back part of the uterus to the fundus, I took hold of the legs, and pulling them downwards, the fore part of the thighs and belly turned upwards, by which means the body was brought down; but the child being large, the head was delivered with some difficulty."

CASE XV.—"Soon after the membranes were broken, I was

called to this case, and found the breast of the child forced down into the upper part of the pelvis: expecting it would require strength to raise and pass it, so as to come at the legs, I had the woman laid in the supine position.

“ Wrapping a cloth round the right hand and fore arm of the child, that was protruded without the external parts, I took hold of it with my left hand, and introduced my right up the back part of the vagina; then unwrapping the cloth and letting go my hold, I pushed up both the breast and the other arm into the uterus, where I found the head and neck above the pubis, the thighs and legs lying double at the left side; which last were easily brought down into the vagina.

“ After resting a little, I endeavoured to move round the body of the fœtus, by alternately pushing up the breast, and pulling down the legs; but finding this only fatigued the woman, as well as myself, to no purpose, I introduced the noose, and fixed it slowly over both ankles, not without some difficulty, as the feet were still pretty high in the vagina.

“ Having at last got it firmly fixed, I twisted it round my right hand, and introduced my left, with which the breast was raised towards the fundus, on the right side, while the legs were pulled down by the noose from the left, without the os externum; then taking hold of the ankles with my right hand, to prevent their being overstrained, I raised the body of the fœtus higher with my left, and by continuing to push up and pull down alternately, the head and shoulders were raised to the fundus uteri, the arms returned into the womb, the breech was brought down into the vagina; then both mother and child were safely delivered.”

CASE XVI.—“ In this case, the patient had been delivered by a midwife in the evening; and when I was called next morning, I found the right arm and shoulder of a second child, forced or pulled down without the os externum. The arm was not tumefied; but, as no pulsation could be felt at the wrist, I imagined the child was not alive.

“ The neck, shoulder, and some of the ribs, as well as the arm, being all without the external parts, I was afraid that it would be impossible to force up these parts of the child into the uterus, so as to turn the fœtus, and bring down the legs: this method, however, I resolved to try first; but if that did not succeed, then to deliver in the manner recommended by Celsus in such cases, viz. to divide the neck, and bring the divided parts separately.

“ Having ordered the patient to be properly held in a supine position, I tried to force up the shoulder, and was happy to find, that the child being small, all the protruded parts returned easier than could be expected into the uterus: then I brought down the legs, and delivered the child, which being alive, I was glad that I had not been obliged to fly to the last resource.”

CASE XVII.—In the Medical and Physical Journal, Mr. Rowlands has published the following curious account of the evolution of the foetus, effected by the action of the uterus, where the arm and funis presented.

"On the 28th of July, 1794," says he, "I was called to E. T. aged 26, a well-proportioned woman, and rather under the middle size. She was in labour of her first child, and the waters had been discharged about half an hour. One hand of the foetus and the funis were protruded beyond the os externum, and the shoulder was firmly locked in the os internum: the pains, at this time, were strong and incessant; and I found it would be impossible, without great violence, to turn the child. I returned the funis several times into the uterus; but with every pain it was forced into the vagina, and I was obliged to suffer it to remain there. The pains continued unusually strong and frequent all night, and my attention was wholly taken up in guarding the funis from compression; but notwithstanding all my care, the circulation was frequently checked, though never entirely stopped. I determined to leave Nature undisturbed, to effect the evolution of the child; for the possibility of which there was undoubted authority*. Between four and five in the morning of the 29th, after twelve hours' very hard labour, I was sensible, during the presence of a pain, that the arm was beginning to recede; and, by the power of the next pain, the child was turned, and expelled footling."

The Children lying with the superior parts to the Os Uteri; the Feet and Breech to the Fundus; the Waters evacuated, and the Uterus contracted in form of a longish Sheath.

CASE I.—"I was called to a woman in labour. The waters were discharged the day before my arrival. On examining, and finding the head of the child did not present, I had the patient laid in a supine position across her bed; introducing my right hand into the vagina, I felt the shoulder, and in raising it, observed that the fore parts of the foetus were to the right side of the uterus, and the head turned up above the pubis. -

"On this information, I was obliged to withdraw my right hand, and introduce my left: while I tried to insinuate it betwixt the breast of the child and the right side of the uterus, I found this last so strongly contracted, that I was obliged to bring my hand lower, and push up the shoulder and head to the left side, to give more room for my hand and arm; these parts not moving round, I again forced my hand up along the breast, and by degrees

* Vide Denman's Introduction to the Practice of Midwifery, p. 291, vol. ii.

reached the thighs and legs, which were folded double on the belly of the foetus.

"As my hand began to be cramped, I rested a little, and the strength of my arm being somewhat recovered, I pushed up my hand further and further, to make more room for taking hold of the ankles: this I at last accomplished, and brought the feet down to the lower part of the uterus; but the great force which I exerted loosened the placenta, and brought on a flooding. Having withdrawn my left hand, I introduced the right, with which, by pushing up the shoulder and pulling down the legs alternately, I at last moved the body round, and the child was delivered, but not without changing hands three or four times, which were much squeezed and cramped by the strong contraction of the uterus: I was also, during the operation, obliged to alter my own position, from sitting to kneeling and standing alternately, as I found it necessary.

"The placenta followed the delivery, and the flooding ceased; the child was alive, contrary to my expectation, considering the great force and squeezing on the breast and abdomen, before I could bring down the legs. The patient being a strong, healthy woman, was not sunk by the flooding, which was of service in relaxing the uterus, and, by emptying the vessels, helped to prevent an inflammation."

CASE II.—"I was called to a person whom I had delivered twice before. To outward appearance she seemed very well formed for bearing children; but her being sickly, and tender in her infancy, was the occasion of a narrow and distorted pelvis.

"The distortion here differed from what I had observed, for the most part, in other cases of that kind. The bad formation is generally from the projection of the lowest vertebra of the loins and upper part of the sacrum, and may be distinguished by examining with a finger. In this patient, the distortion arose from the three lowest vertebrae of the loins bending forward, and could not be felt till after delivery, except in this last case, where I was obliged to bring down the legs of the child, and deliver in the preternatural way.

"In her first labour, when about five-and-thirty, she was attended by a midwife, and it proving laborious, a gentleman was called, who was obliged to open the head and extract with the crotchet. In her next pregnancy I was bespoken; and as the head of the child presented, I managed the labour from the beginning in a slow and cautious manner; but although the child was small, I with the greatest difficulty saved it, by the assistance of the forceps. When I attended in her third labour, with the same caution and patience as in the former, I could not save the child, which was larger; but found myself obliged to use the same me-

rhod as the other gentleman had taken in delivering the first, to save the patient's life.

"When bespoken to attend a third time, I was under no small anxiety on account of the difficulty that attended her labours; but more so, when called, and examining, I found that the head of the child did not present. The membranes had not broken, but, in time of a labour pain, were pushed down to the lower part of the vagina, and the mouth of the womb was largely dilated.

"After considering the case, I resolved to try in time, before the membranes broke and the waters came off, either to bring the head to present, if large, or, if the child was small, to bring down the feet, and deliver in the preternatural way; but while the bed was preparing, a strong pain came on, which broke the membranes, and a very large quantity of waters was discharged on a sudden, the patient being in a standing posture.

"The nurse having put her to bed, her breech was brought down to the feet of it, and she was laid on her left side; this position being most advantageous, on account of the projection of the distorted bones, which would have prevented my hand's going up, if she had been in the supine position.

"Having seated myself a little behind the patient, I introduced my right hand into the vagina. The shoulder presenting, and the head to the right side of the uterus, I endeavoured to push up the first, and bring down the last, to present in the natural way; but finding the strong contraction of the uterus prevented my raising the shoulder sufficiently, and that the slipperiness of the head evaded my fingers, so that I could not alter its position, I gave up all hope of succeeding in that manner; for, when the membranes broke, the distorted bones prevented the shoulder's coming down to fill up the passage, and keep up some of the waters.

"Finding the contraction of the uterus so strong, and the strainings of the patient so great, that I could not reach the feet, I caused her to be turned to her knees and elbows, to prevent further strainings: while she was kept firm in this position by the assistants, I introduced my hand again, and finding the resistance less, I pushed it up gradually along the fore part of the uterus, where I found one of the legs, which I brought down; then pushing up the shoulder and pulling the limb, alternately, as in the former case, I extracted it without the os externum.

"By this time I was pretty much fatigued, and rested a little. The woman complaining of the uneasy position, I had her again turned to her side: having fixed a noose round the ankle, and twisted the other end of it round my right hand, I introduced my left to the face, and fore part of the neck and breast of the child, which were at the under part, and right side of the uterus: by

pushing up these, and pulling at the same time the leg down with the noose, I brought the breech lower, and the head, with the breast, to the upper part of the womb.

" Having withdrawn my left hand, and considered that there was still a greater difficulty to overcome in order to save the child's life, by bringing the head through the passage of these distorted bones, I moved the patient into the supine position, as formerly described. This alteration afforded more liberty to operate with safety than could be procured in any other.

" Wrapping a cloth round the child's right leg, I began to pull, and, by the assistance of the mother's efforts, brought down the hip to the lower part of the pelvis; then introducing the fingers of my left hand over the other hip into the groin, and pulling with both hands, I brought down the body to the arm-pits.

" Finding, by the pulsation in the funis, that the child was alive, I slipped my right hand up along the breast, to feel the position of the head, which was still high, and above the distortion, with the chin to the right side; but not being able to bring the head or shoulders lower, I withdrew my hand. After having brought down both arms, I introduced my left hand, and the head being a little lower, I hooked two fingers in the mouth, laid the body of the child on that arm, and fixed the fingers of my right hand over the shoulders on each side of the neck.

" Having taken a firm hold with both hands, I tried, in a slow and cautious manner, to bring down and extract the head, by increasing the force gradually, moving the face of the child backwards and forwards, sometimes altering my fingers from the mouth to the sides of the nose, sometimes quitting again these holds, and trying Daventer's method, by pressing down the shoulders, to bring the occiput out from below the ossa pubis: this method not succeeding, I again introduced my fingers to the mouth; but after exerting greater force, and pulling the body of the foetus upwards, downwards, and from side to side, I was obliged to rest, and began to despair of saving the child's life.

" The woman all this time behaved with great courage, and assisted with all her strength, by forcing down every time I desired. As there was still a weak pulsation in the funis, I resolved to make another effort with all my strength, by which the head was moved a little lower; then forcing up my fingers to the forehead, I got a firm hold on it, and finished the delivery.

" The force used in turning the child had loosened the placenta, and brought on a large discharge of blood, as in the former case; a circumstance which commonly happens in such deliveries. As the after-birth followed the delivery, I wrapped it in the receiver with the child, and laid all on an assistant's lap near the fire, without tying and separating the funis, because I still found a creeping motion in the arteries.

"After having moved the patient from her uneasy position, and further up from the foot of the bed, I tried the common methods to assist the recovery of the child. Soon after, the infant shewed some weak signs of life, and in about ten or fifteen minutes began to cry, and breathe with more freedom.

"As I suspected that the neck was overstrained in time of delivery, the head was gently pressed towards the shoulders: on the recovery of the child, I examined the mouth and all the limbs, to find if any thing was amiss. The infant continuing to cry incessantly while the head was washing, I examined, and perceived a large tumor above the right ear; I likewise found a depression of the temporal bone before the ear, and the frontal and parietal bones pushed outwards: these formed the swelling, and were the parts that stopped at the distorted bones of the vertebræ. On pressing the tumor with my fingers, the child was quiet, but on removing them from the part, the bones were again pushed out, and the child fell a-crying. By repeating the experiment more than once, I was convinced that this was the occasion of the complaint.

"Having applied a thick compress, moistened with vinegar and spirits, on the tumor, and secured it with a proper bandage, I desired the nurse, if that was not sufficient, to continue to assist with her hand, as before; for I did not choose to bind the head too tight, as such fits of crying never happened in my practice, neither before nor since. I was glad to find next day that the swelling had disappeared.

"The child was smaller in this case than in the former, and she mother recovered better than in any of her preceding labours. The difficulty that attended the delivery of the head, made me resolve to use the long forceps."

CASE III.—"Being called to a watchman's wife, the midwife told me, that the waters had come off in a large quantity, on which the arm was forced down into the birth, and the hand appeared without the external parts: she had tried different methods to make the child (as she ignorantly imagined) withdraw up its hand into the womb, and change itself into the natural position, dipping its hand in a basin of cold water, and also in vinegar and brandy; but finding these trials fail, she had recourse to the last remedy, before any assistance from a man practitioner was thought necessary: she directed the woman's husband to take hold of her legs over his shoulders, and lift up her body three times, with her back to his, and her head downwards; being of opinion, that although the former methods failed of success, this would answer expectation.

"On examining this case, I found by the hand and fingers, that the left arm was come down, and that the fore parts of the fœtus were probably to the right side of the uterus. I promised

to support the woman in her lying-in; and on this consideration, the gentlemen who then attended me for their instruction in midwifery, were allowed to be present at the delivery.

"Finding I could not keep the patient in a firm position, when on her side, I had her turned to her back, with her breech to the bed's feet; two of the gentlemen sustained her legs; her head was supported by lying in the midwife's lap; the midwife was seated on the bolster at the head of the bed, to keep her firm in that position, and restrain her arms, so as to prevent her hands from pulling at the assistants or me, in time of the operation.

"As the arm of the child was but little swelled, I easily introduced my left hand below it into the vagina; then pushing up the shoulder, insinuated my hand betwixt the breast and the right side of the uterus; but finding, after several strong efforts, that I could neither raise the shoulder higher, nor push my hand sufficiently up to come at the feet, I altered her position in the following manner.

"Observing that the midwife kept the woman's head and shoulders too high, I made her sit further up on the bed, that they might lie lower; but my hand and arm being by this time cramped and wearied, with working in too great a hurry, I was obliged to withdraw both, and rest a little. Considering that my other hand could not, in this position of the woman, reach the legs of the child, which were at the right side, I turned her to her knees and elbows, and had her supported in that posture by the assistants, on the bed."

"I then insinuated my right hand, and gradually stretched the contracted uterus, when I found the feet were turned up to the breech at the fundus. I now endeavoured, with all my strength, to push further up, so as to make more room to take hold of the legs; but the woman being strong, and struggling incessantly, we could not keep her in that position; so that all my efforts to bring them down proved abortive.

"This hand and arm last introduced being likewise cramped, I was obliged to withdraw them, and I began to despair of succeeding without the assistance of the crotchet; but I resolved to make one effort more. Finding we could not keep her steady in this last position, I had the bed raised very high at the feet with bolster and pillows; then she was laid again in the supine position as at first, her breech being raised much more, with her head and shoulders very low.

"My left hand being now pretty well recovered from the former fatigue, I introduced it as at first, and at last reached up to the fundus uteri; I now brought down one of the legs, and delivered the child with the assistance of the nodule, as in the former case, but with much less difficulty, as this woman had a much larger and better formed pelvis.

"The child was alive; the mother recovered; and the placenta, being loosened in the time of operation, followed the delivery.

"She continued weak for three or four weeks, and complained of great pains in the abdomen and neighbouring parts; but having had large discharges at first, and being carefully attended, and kept in breathing sweats, the lochia and milk were so promoted as to prevent, in all appearance, the danger from a violent inflammation of the uterus.

"As this was one of the first difficult cases in which my pupils were allowed to attend, after I began to teach midwifery, I was really afraid, in time of operating, of being foiled, and suffering reproach, for pretending to teach others, while incapable of delivering so strong and so well formed a subject, without being obliged to bring the child by piece-meal with instruments; especially as the woman had told us, that in all her former labours she was commonly delivered before the midwife could come to her assistance.

"Although, while I lived in the country, I had been called to many such cases, yet I was never more fatigued. I was not able to raise my arms to my head for a day or two after this delivery; and one of the gentlemen who was present, being of a delicate constitution, was so much afraid, that he resolved never to venture on the practice of midwifery."

CASE IV.—"In this case," says Dr. Smellie, "the midwife told me that I had formerly been with the same woman, who recovered slowly after a tedious labour; that this would prove more dangerous, for that the arm of the child came down immediately after the membranes broke, on which there flowed from the womb a large quantity of waters.

"She also informed me, that as the hand was without the birth, she had folded it up in the vagina, to keep it warm till I should arrive. The patient was then lying on her left side, across the bed, which was uncommonly high, with a pillow betwixt her knees. I did not sit, nor kneel, but stood, and moved her breech near to the side of the bed; then I brought the hand again down out of the vagina, and told her it was the right, to prevent reflections, if that limb should prove lame after the delivery. I had found such complaints proceed from the midwife's pulling at the arm, and trying to bring along the body in that manner; but this notice being given, the accoucheur could not be blamed for overstraining the limb, and the misfortune would be imputed to pressure or cold, while the arm lay in that position.

"Finding by the arm of the child that its fore parts would probably be to the left side of the uterus; and also, that the abdomen of the patient was very pendulous, by its hanging more than usual over the pubis, I perceived that I could operate with

greater ease while she lay on her side, than when lying in a supine position.

"I introduced my right hand into the vagina, and in pushing up the shoulder, could distinguish, that although the pelvis was narrow, the child was not large; that the breast was forwards, but towards the left side, the head turned back on the shoulders to the opposite side. The contraction of the uterus being very great, it would have been impossible to bring down the head to present in the natural way; my endeavours for this purpose would have served only to fatigue the patient and myself with vain labour.

"My hand being so far advanced, I pushed it up further and further, along the left side of the uterus, to come at the legs of the child; but the patient's head and shoulders being too high (which position I forgot to alter), this circumstance, joined with the force of the breast and abdominal muscles, in her strainings against me, prevented my hand's going up sufficiently to reach these parts. Being afraid to bring down my right hand from the contracted womb, I slipped my left under her left hip, and, by the help of the assistants, turned her to her knees and elbows. (Vide Case V.)

"By this method, both the pressure of those parts and the weight of the child being much abated, the abdomen sunk downwards, though at the same time her thighs and knees kept the belly above the pubis: at last, my hand penetrating to the fundus uteri, I took hold of the feet betwixt my fingers; then pulling them down, and pushing up the breast, I, after a good deal of fatigue, brought the legs without the os externum. I now turned the patient to her back, and with safety delivered both her and the child, although the head stuck some time in the passage, and both force and caution were required to extract it."

CASE V.—"I was called to a labourer's wife. Her midwife, on pretence of being sent for to another, had left her soon after the membranes broke, assuring all present that the child presented properly; and she promised to return in time for the delivery: but on examining, I found both the arms down at the os externum, and the breast presenting at the upper part of the vagina.

"After every thing necessary was prepared, I had the patient laid across the bed in a supine position, with her breech high and her shoulders low. As the pelvis was large, and the arms of the child small, I, in time of the labour pains, stretched the external parts, and introduced my hand into the vagina, up to the breast of the foetus: in raising this, and examining the situation, I found the head was cast back above the pubis.

"As the breast of the child was towards the sacrum, I pushed

up my hand betwixt the abdomen and the back part of the uterus, and then went higher and higher, in a slow manner; and by intervals stretching the womb, which was strongly contracted. I found the thighs, knees, and legs, doubled up to the fundus; but not being able to come at the feet, which were cast forwards on the breech, I hooked my fore finger into the hams. This purchase not being sufficient, I let go that hold; and at last getting one of the feet betwixt my fingers, I brought the leg down to the vagina. This was not effected without a good deal of fatigue, in pulling down the foot and pushing up the breast; but not being able to bring down the other, I was obliged to rest some minutes to recover the strength of my hand and arm.

"Having procured a soft garter from one of the assistants, I formed it into a noose, and tried to introduce and fix the ligature round the ankle of the child; but the foot was too high to admit its being applied properly. I was again obliged to introduce my hand into the uterus, and by pushing up and pulling down, as before, brought the foot without the os externum; then, with the assistance of the noose, I altered the bad position, by raising the head and breast to the fundus uteri, bringing down the breech of the child to the lower part of the womb, as in Case II.

"The arms of the fœtus, by this movement, returned into the uterus, and afforded more room to bring down the other leg. Having wrapped a cloth round both, and finding, on extracting the thighs and hips, that the belly of the child was towards the pubis, I turned them to the sacrum. As the body came easily along, I did not bring down the arms, neither did I introduce my fingers to the face, to turn the forehead into the concavity of the sacrum; but by pressing down the shoulders of the fœtus, brought the occiput out from below the pubis.

"The child lay a long time seemingly dead, but at last recovered. In the mean time, one of the assistants imprudently telling the patient it was dead, she was immediately thrown into convulsions, and with difficulty recovered from instant death, by applying stimulating things to her nose, such as burnt feathers, woollen rags, and spirits; and when she retrieved the use of her senses, the cries of the child contributed greatly to her recovery."

CASE VI.—"The waters, in this case, had been discharged many hours; the head was at the upper part of the pelvis, and did not advance lower, although the pains were strong and frequent; but as the patient grew weaker, and was every now and then attacked with fainting fits, the midwife apprised the friends of the danger, and desired them to send for my assistance.

"Having considered every circumstance of the woman's condition, and ordered every thing that was necessary to be in readiness, I had the woman secured in the same position as described

in the foregoing case; and in pushing up the face and head with my left hand to the left side of the uterus, found the fore parts of the child were to the back part of the womb; but in tracing further up to search for the feet, the strong contraction of the uterus pressed the head with such force against the muscles of my arm as to benumb my fingers, and gave me so much pain, that I was obliged to withdraw that hand.

"The patient's position being altered by her shrinking from me, I brought her breech again to the side of the bed, and desired the assistants to hold her in that situation. Encouraging her by promising to do all in my power to save both the child and herself, I introduced my right hand into the uterus, and delivered nearly with as great force and fatigue as in the above case. As the child, however, was large, I could not bring out the head in that manner, but was obliged to deliver it as in Case II.

CASE VII.—"Being called one morning early, the midwife informed me, that she had delivered the patient several times; that her labours were soon over, the children always following the rupture of the membranes; that although the head presented in this case also, she was afraid the delivery was obstructed by a large excrescence, which she imagined filled up the back part of the passage.

"The waters had come off the day before, and the woman had been in strong labour all night.

"When I first examined forwards, and towards the pubis, I was deceived as well as the midwife, by imagining that the child's head presented in the natural way; but in making another trial in time of the next pain, introducing the first finger of my right hand further up, and backwards towards the sacrum, I felt an uncommon soft substance, which I felt all round. At last, with some difficulty, I discovered that it was the face. The cheeks were so much swelled, that the eyes, nose, and mouth, seemed as if buried betwixt them, and the chin was backwards toward the left side of the pelvis.

"The woman's strength being much exhausted, and the child in danger of being lost in this bad position, I resolved to try either to alter the presentation, or deliver in the preternatural way. Having, as in some of the former cases, ordered the patient to be secured, and kept firm in a supine position, I gradually dilated the os externum, and raised the head above the brim of the pelvis; but the contraction of the uterus was so great, and that part of the child so slippery, that I could not raise up the face so as to bring the vertex to present in the natural way.

"The patient had made pretty strong efforts in leaning down against me during this trial. I now rested a little, to observe if the face of the child would come down lower in the pelvis, so as I might be able to assist the delivery with the forceps; but after

waiting some time, and the labour pains being weak, I at last, by using a good deal of force, pushed up the head to the fundus uteri. The legs were brought down and the child delivered, as in the former case. The face was livid, and excessively swelled; but these appearances went all off in a few days."

CASE VIII.—"Being called to a woman, the midwife informed me, that the waters had been coming off for about twenty-four hours; and although she had tried several times to assist the delivery, by pulling at the arms of the child, which were come down before the head, yet the presenting parts stuck so fast in the bones, meaning the pelvis, that she could not bring them lower, and therefore had, as it was a desperate case, sent for my assistance.

"On examining, I found both arms come down much swelled, and backwards towards the sacrum, with the head advanced a little, in a conical form, at the fore part of the pelvis.

"Considering these circumstances, observing the patient greatly exhausted with the length of the labour, the pains weak, and being certain that the child was still alive, from the motion every now and then of its little hands and fingers, I resolved to deliver, if possible, in the preternatural method.

"Having ordered the woman to be laid across her bed, and secured in the supine position, I introduced my hand into the vagina, and pushed up the child's head to the fundus uteri; then the arms returned into the womb. After much fatigue, I brought down the feet from the back part of the uterus, and delivered the infant, as in the former case. I did not know, at this time, the method of fixing a noose on the ankles, therefore the operation was the more tedious in pushing up the body, and pulling down the legs sufficiently without the os externum, so as to take a proper hold of them with my other hand. In this operation, I was obliged to rest every now and then, and also to change my hands several times.

"The patient recovered; but, from the ignorance and imprudence of the midwife, in not tending sooner for assistance, the helpless child lay moaning and crying for many hours before it expired; for, by her pulling at the arms, they were so overstrained and tumefied, as to bring on a mortification of these parts."

CASE IX.—"In this case," says Dr. Smellie, "I was certain, as well as in the former, that the child was alive, by feeling a strong pulsation in the vessels of the umbilical cord, which lay in several folds at the left side of the pelvis.

"The midwife informed me, that she had felt the same motion immediately after the membranes broke; that the head of the child, although a large quantity of waters had been discharged, still kept high; and that being afraid, if the labour was tedious, the child would be lost, she had desired the friends to have re-

course to my assistance, more especially as the woman's former labours were commonly tedious, though safe.

"As the patient was then lying in bed, on her left side, and kept steady in that position, I introduced my right hand into the vagina, and examining the position of the child's head, found that the vertex presented, with the fontanel to the same side of the pelvis, where the funis was come down. After this enquiry, I pushed up the head, and tried to slip and pass the cord above it, to prevent the pressure and obstruction of the umbilical vessels; but finding, as I pushed up the different folds of the funis, they again returned alternately, and eluded all my endeavours to raise them, so as to remain above the forehead and face of the child, I had recourse to another method; I introduced my hand into the uterus, and delivered in the preternatural way, as described in Cases VI. and VII. under this head.

"When the head is not uncommonly large, nor the pelvis narrow, this method of delivery seems most advisable to save the life of the child; for, unless a very small part of the funis is come down, it seldom can be slipped up so high as to prevent the pressure of the head, and obstruction of the circulating fluids in the umbilical vessels."

CASE X.—"This patient lived at the distance of several miles from my habitation. I had formerly delivered her twice of dead children; her pelvis was very narrow, and distorted at the upper part of the sacrum. She had both times been long in labour, and much exhausted before the friends desired my assistance. The heads of both foetuses were squeezed down of a great length, and so engaged in the pelvis, that she could not be delivered with the assistance of the fillet in time of the weak pains. As the waters had been long discharged, and the uterus was strongly contracted, it was impossible to push up the heads, so as to apply the fillets to advantage, or to turn the children, so as to deliver them in the preternatural method; but at last, after waiting a considerable time, I had been obliged to open the heads with the scissors, and extract with the assistance of the blunt hook.

"As it required a considerable force to deliver, after the heads were diminished by the large discharge of the contents, I question much, though I had then known the use of the forceps, if I could have saved them with that instrument; for I can very well remember, although now revising this with other cases long since, the fatigue that I endured at these two labours.

"As a ridiculous opinion prevails amongst the vulgar, that there are certain remedies to procure barrenness, and indeed such described by many of the eldest authors, the woman's husband, and some of their friends, called on me soon after the second delivery, and begged I would prescribe some medicines of that nature. I acknowledged my ignorance of the effects of any such

medicines, and desired them not to throw away money in going about to any false pretenders to such secrets; but to send for me at the beginning of labour, if his wife should again prove with child. My advice was taken, and I was called accordingly; but before I arrived, the membranes were broken, and most of the waters discharged.

"On examining, I found the head of the child resting above the pubis; not, as in the former cases, forced down into the pelvis. Although it required much force to deliver the body and head in the preternatural way, yet this being smaller than any of the former children, it was happily saved; but I neglected at that time to examine if all the limbs were sound. The father calling on me about three months after, told me, that although I had brought him a fine girl, yet he had been punished for his desire of having children, for she had not the power of her left arm. Some weeks after this visit, happening to be in that part of the country, I found the shoulder had been dislocated in time of delivery, and endeavoured in vain to reduce it.

"I was again called a fourth time to deliver the same patient. I turned and brought this child the preternatural way; but it being much larger than the last, was lost by my being obliged to tear down the head with the sharp crotchet.

"After I settled in London, a gentleman, who succeeded me in that branch of business, wrote me, that he had delivered the same patient, but that he could not possibly save the child; and that he had been so excessively fatigued in the operation, that he could not help wishing I had still remained in the country, in which case he should not have been called to 'for desperate labour.'

"Since I retired from business to the same country, Mr. Inghes, who succeeded the above gentleman, informs me, that he delivered the afore said woman in her last child, in the same manner I had chosen in the delivery of the two first children."

CASE XI.—"This woman had been delivered of her first child by another practitioner, who was obliged to open the head of the foetus, and extract it with the assistance of the crotchet."

"When she was in labour of her second child, and was gone seven months, I was called, and as the arms presented, delivered, and saved the foetus, by bringing down the legs, and extracting the body and head in the preternatural method.

"In her next pregnancy she went her full time of reckoning. Being called to her some hours after labour had come on, I found the os uteri largely open, the membranes broken, and the head of the child presenting. As she was then in bed, and lay on her left side, I had her turned to the right, that the waters might be more in the middle, and give the foetus a straighter position, to be

forced along with the labour pains; but the head did not advance. Considering that the first was lost by waiting for the natural delivery, that the second was saved by the preternatural method, and as this, by the touch of the head, felt small, I thought it safer to turn, apprehensive that the patient being weak, and of a consumptive constitution, she would not have strength to force along the head through such a distorted pelvis.

"Finding that this position was uneasy to the woman, I had her again turned to her left side; but introducing my right hand into the uterus, and finding the legs of the fœtus to the right side, without being able to reach them in that position, I was obliged, by the aid of the assistants, to place her on her knees and elbows, according to Daventer's method. The narrow pelvis cramped the muscles of my arm so much, that with difficulty I got my hand so high as to bring down the legs; then I turned the patient to the supine position.

"The woman having been much fatigued, I gave her a cup of warm wine, with ten drops of tinct. opii; but a flooding coming on, I was obliged to deliver the child immediately: being larger than I expected, it was lost in extracting the head.

"The force exerted in turning the child had disengaged the placenta, which was the occasion of the flooding. The pelvis was so narrow, that although I used all the precautions described in the former cases of this collection, yet I could not deliver the head so fortunately as in my former attendance on this patient.

"As the mother recovered with great difficulty, I was sorry on reflection that I had hazarded this method in so weak a patient; I wished I had rather waited the efforts of nature, and if these had proved insufficient, that I had used the forceps, when the head came low down in the pelvis; or at least, if all her efforts had been insufficient to render that assistance practicable, that I had delivered the child as in her first pregnancy."

CASE XII.—The woman was attacked with colic pains, and convulsion fits. He was obliged to bring the child footling, from its presenting with the arm: this he easily effected, till it was extracted to the shoulders, where it stuck pretty much, and gave him great trouble in bringing down the arms. Then he tried, with his fingers in the mouth, to deliver the head, by pulling it upwards towards the pubis; but finding a great resistance, and pushing his fingers further up, he found the placenta down in the back part of the pelvis, which last being very strait, had forced the head so against the pubis, that it resisted all the force he durst apply. He then introduced a finger between the head and that bone, to disengage it; but it answering no purpose, he seated himself on the floor of the room, and ordering the woman's breech to be brought a little over the side of the bed (she lying

in a supine position), he delivered the head by pulling the body of the child downwards. The child was dead, and, luckily for the woman, small in size; so that she recovered very well.

CASE XIII. and Supplement to CASE III.—A correspondent of Dr. Smellie's was called to a well-made woman about thirty-five, who had several children. He found with her two midwives, who acquainted him that the waters had been come away about eight hours.

"Her pains," says he, "were strong and quick. Upon touching her, I found a hand presenting in the vagina. While endeavouring to distinguish which hand it was, it protruded through the os externum to the elbow. This was the first case that offered to me in this country, and as I was apprehensive the head might perplex me if I delivered footling, I endeavoured to return the limb, and facilitate the natural delivery of the infant. The limb could be returned into the vagina, whence it often protruded. The contraction of the uterus was too strong to admit my changing the position of the child, by forcing up. My hands being cramped, I was obliged to quit that attempt: but during these endeavours, I discovered that the shoulder and back presented, with the head lying to the left ilium. After refreshing the woman with cordials of her own, and encouragements, while I rested my hands, I searched for the feet, which were quite up at the fundus uteri: these I secured between my fingers, and the arm re-entered as I brought them down. When I had them just without the os externum, I wrapped a piece of fine cloth about them, and held them gently, drawing with one hand, while I endeavoured to assist the position of the face, with the other slipped up along the sternum.

"I found some considerable resistance push up the hips a little, and gave the quarter turn. I then proceeded, and delivered the infant, with a turn of the umbilical chord about its neck; this I divided instantly, and extracted the placenta. After resting a little while from her fatigue, my patient was put to bed: the child lived about half an hour."

CASE XIV. and Supplement to CASE III.—Mr. Mudge, of Plymouth, was sent for to a woman who had been four days in labour, and the waters had passed off three days before. He found her very weak, and her pulse was very much depressed. On touching her, he was very much surprised to find the arm hanging out of the os externum, and the shoulder quite filling the mouth of the uterus; it was extremely swelled, and quite black with the violence it had suffered for three days successively, by the rude pretended assistance of the midwife. The chord came down by the side of the arm, the pulsation of which was evident enough.

He without great difficulty (the pains being luckily absent)

pushed up the breast of the child, introduced his arm quite to the elbow into the uterus, before he could come at the feet, which he took hold of. The arm soon went up, and the delivery was accomplished: he wrapped up the child's arm in a cloth.

It was a stout boy, and both it and its mother did very well. No labour could have a more unpromising appearance, and yet it turned out very easy; the whole did not last above six minutes.

Chapman, in his *Treatise on Midwifery* (page 111), relates a case, in which the arm was taken off; the child was alive, and lived to be a man.

CASE XV. and Supplement to CASE IV.—Mr. Mudge was called to a patient an hour after the membranes were broken. She had some slight pains; but he could not, in examining, reach any part of the child.

After she had been two days in a lingering way, he at last felt some part presenting like the nates. She had not felt the child stir for many hours, and the meconium began to come off: although the pains gradually increased, yet the child did not advance. The patient's strength failing, he laid her across the bed, and introducing his hand into the vagina, found that the right shoulder presented, with part of the arm, not fallen down into the passage, but lying across the os uteri.

He then insinuated his hand into the uterus, along the belly of the fœtus, to search for the feet, and with great difficulty got down the left leg; but could not bring it without the os externum, so as to get a cloth round it, in order to assist the turning. He tried the noose several times; but it would bear no great force without slipping. A flooding coming on from the great force used in trying to bring down the other leg, which, with the breech, hung over the pubis from the abdomen, being very pendulous; he changed hands, the right being excessively fatigued, and endeavoured to come at the other foot with his left hand; but it was quite out of his reach, nor could he in the least turn the child at all; though he pushed up the shoulder with great force, while he tried at the same time to pull down the leg, that was in the passage.

All this time the woman was bleeding excessively, and he was afraid every moment that she would die under his hands. He then sent for the largest sized forceps, that are used in extracting the stone, and laid hold of the leg with them; but after several fruitless attempts could not move the child. He was almost fatigued to death, and in the greatest anxiety of mind to think he should see his patient die under his hands. He determined to make one final attempt to come at the right leg: he introduced his hand and arm into the uterus, and pushing still higher and higher, he at last got his arm so far till his elbow was in the

middle of the pelvis. By which means he had now an opportunity of bending his arm over the os pubis, and got hold of the foot, which he immediately grasped and brought down to the passage. The buttocks following, he soon delivered the child, which was very large and dead. The placenta was soon delivered; the flooding stopped at once, and the mother did well.

Dr. Smellie's observations on this case are very important. "I have," says he, "had several cases, wherein I have had much the same difficulty, and have been greatly fatigued before I could bring down the legs, especially in pendulous bellies, where the legs of the child were to the fore part of the uterus.

"The woman is kept much firmer, when laid in the supine position, and you come at the legs easiest when they are towards the back part or sides of the uterus; but when at the fore part you find them better, by having the patient lying on her side; because then you can stand behind, and your arm is not interrupted by the pubis so much as when in a supine position.

"I have also of late found, where the belly has been very pendulous, and I could not reach the feet easily in the side position, that by turning the woman to her knees and elbows, I came much readier to the feet, as that position takes off the great pressure of the uterus and child."

This was Daventer's method; and Dr. Gordon, of Glasgow, commends it, especially where the abdomen is pendulous.

He says, that one of the principal things to be known in midwifery, is the position that the patient is to be placed in when you want to turn the child and deliver it by the feet. The best way is to place her on her knees and elbows, with her breech raised higher than her head; for you operate much easier with your hand downwards than you can do with it upwards, when she is laid on her back; besides, the weight of the child assists you, when you push the body back in order to get hold of the feet. He says he always found this the best posture, until the feet descended to the os externum; when he turned the mother on her back and delivered her,

CASE XVI.—A correspondent of Dr. Smellie's was called in by another practitioner, where the chin had presented. The first had several times tried to deliver with the forceps, and broke the lower jaw with his fingers. He then essayed to turn and deliver it by the feet, and in endeavouring to bring down one leg with great force, it was pulled off: a flooding coming on, and his strength being quite exhausted, the other was called.

The woman's strength was almost gone. He introduced his hand into the uterus, and, after great fatigue and sweating, he got hold of the other foot, over which he fixed a noose, which he twisted round one hand, while with the other he raised up the head and breast, and got the body delivered.

It stuck at the shoulder, but by giving it a quarter turn the obstruction was removed, and at last the head was delivered, though not without a good deal of trouble and caution, on account of the largeness of the head, and the bad hold at the broken jaw. The child was dead, and the woman expired in seven or eight minutes from the great flooding.

"I wrote him," says Dr. Smellie, "that no doubt the gentleman, since he did not succeed with the forceps, acted right in trying to turn; but then when it required so great force (which undoubtedly brought on the fatal hæmorrhage) it would have been safer for the woman had he opened the head as it presented, and extracted with the crotchet.

"However, it is impossible to judge, except when present, and we are too ready to reflect, after an unlucky case is over, that another method would have been better, though we acted then to the best of our judgment."

CASE XVII. and Supplement to CASE II.—This woman (the patient of a correspondent) was about thirty; had been rickety in her youth; one shoulder was higher than the other; one of the ossa pubes was considerably further protruded than the other.

Before he was called, she had been three days in labour. The mouth of the womb was largely open. The head was well advanced in the pelvis. She had frequent pains; but the head did not advance further. On introducing his hand he found a great moisture, and withdrawing it, perceived it besmeared with meconium, whence he told the by-standers that the child was either dead or very weakly. On enquiry, he was told that there had been no stoppage of urine. The position being such as favoured the use of the forceps for extracting the child, he introduced it accordingly, not-doubting to find an easy delivery, as he had often seen and experienced with the help of that instrument; but, contrary to expectation, he could not move it with all his force.

After this he withdrew the forceps and raised the head of the child, on which the urine flowed out to an incredible quantity. Believing the distension of the bladder had hindered the head from advancing, he again tried the forceps, but could not mend the matter. On examining, he found he could introduce his hand without much difficulty: he then turned the child, and extracted it by the feet, after being fatigued almost to death. The woman recovered.

He desired Dr. Smellie's opinion of the labour, and begged to know if he thought it not always safer in rickety patients to turn the child.

"I wrote to him," says the doctor, "that I had oftener than once, in the beginning of my practice, in those cases, brought the child footling, and although I had sometimes succeeded, yet in others I could have wished after the head was turned up into the

uterus, that it were still in its first place; because, when the body was delivered, the head stuck so above the pelvis, that it was not possible to save the child; and the parts of the woman were so bruised, that if she did not die, she recovered with great difficulty: that no doubt it was our duty to do all we could to save the child; but not so as to endanger the woman's life: however, in this case, as he could so easily introduce his hand, I thought it was right to try that method to save the child's life."

CASE XVIII.—A surgeon in Harwich, on the twenty-fourth day of December, was called, at ten o'clock, to a young gentleman of a delicate constitution, in labour of her first child.

The midwife had been with her the greater part of the preceding night. "She told me," says he, "that the waters broke at five in the morning; that the patient had no pains since, except a few slight ones, which were chiefly in her back and loins; that the parts were so tight she could make no way for the child; but she felt nothing uncommon.

"Upon examination, I found the os externum so tight, that I had scarce room to introduce two fingers; but with my first I felt the arm much swelled, and far advanced in the vagina in a doubled form, the fore-arm being reflected upwards.

"The os externum felt thick, but lax and yielding.

"Being satisfied in these particulars, I could with great certainty foretel the difficulty that would attend the delivery, which I at last surmounted in the following manner.

"Finding the patient had not been much fatigued, either by pains or the midwife, I placed her upon her side, with proper assistants to support and keep her steady in bed.

"I first began to lubricate and dilate the parts gently, by which means, in about half an hour, I made room for the admission of my hand, which I introduced in a flattened form to the brim of the pelvis, which I felt narrower than usual, occasioned by the last vertebra of the loins and upper part of the sacrum being too near the ossa pubis.

"I found also the top of the shoulder of the child entering the brim of the pelvis, the breast towards the sacrum, the head over the pubis, and the feet at the fundus uteri.

"I endeavoured to raise the presenting parts, and bring down the legs; but the dryness and strong contraction of the womb, which together with the pains now acted forcibly against me, soon convinced me that it was impossible even to move them an inch.

"This method not succeeding, I pushed up my hand, by which I stretched the sides of the uterus, and by that means with great difficulty reached the feet, which I endeavoured to bring down; but my hand and fingers were now so cramped, that I could not move them.

"I rested a while, in which interval the patient was seized with

a deliquium, which took 'off the pains and contraction, so as to give more liberty to take hold of one leg, which I brought down as far as the bending of the knee would allow me, but could not bring down the other.

" Having brought out my hand, I placed a noose upon my fingers, and with great difficulty I put it over the ankle; then taking hold of the garter with my external hand, I pulled down with this, and shoved up with that in the womb, and by these means turned the head and shoulder to the fundus uteri; the leg was brought through the os externum, and the thigh into the vagina.

" Having succeeded so far, I withdrew my hand from the womb, and assisted with both externally, pulling from side to side, and giving the proper turns (according to the usual practice), till the body was extracted as far as the breast.

" Finding the body was obstructed in coming further, by the arm lying across; I brought down that, and then the other; and after the shoulders were come through, I with two fingers in the mouth pulled the chin to one side, and brought it into the pelvis; then turning the patient to her back for more liberty, I moved the forehead to the concavity of the sacrum, and delivered the same with a half-round turn upwards.

" I tried all the common methods to recover the child, but to no purpose. The patient enjoyed a good night by the help of an opiate, and afterwards recovered."

Præternatural Cases, wherein the Women were delivered by the Assistance of the Crotchet.

CASE I.—A midwife, who was attending a woman in the country, found; as she imagined, after the membranes were broken, that, instead of the head, one of the arms was pushed down into the vagina; and acquainting the friends with this circumstance, they immediately sent for Dr. Smellie.

" I found," says he, " when I examined, that, instead of an arm, there were two legs lying double in the vagina, and the knees presenting: at first, indeed, I found but one, which was lower than the other, and I imagined it was an arm, as the child was but small; but going round the vagina with my finger, I felt the other; I distinguished the knees by their having a more obtuse feel than the elbows; and bringing one of them through the os externum, was much better pleased to find it was a foot. Having placed the woman in a supine position, I brought down the other leg, and, having wrapped a cloth round the feet, I pulled the child gently along. As it was one of the first cases of this kind which I had seen, I had not the precaution to introduce my hand to feel, before I brought down the body, whether the head was low down, or up towards the fundus; for after I had brought

the breech down to the os externum, and turned the back part of it from the right side of the pelvis to the pubis, I could not bring the body lower down than to the small of the back: Finding, after reiterated trials, that it would not move further, I pushed up the fingers of my right hand along the belly of the child, and found the head folded down on the breast at the side, and both squeezed together in the pelvis. I tried to push up the body, and my hand, further, to raise the head; but the body filling up the pelvis, and the head and breast being squeezed together by the former force, in pulling down, I could not, after several trials, alter the position. I was then obliged to pull down the body with greater force, till I found, after repeated trials, that the vertebræ of the loins were so overstrained, it was impossible to save the child. I then introduced the crotchet betwixt the head and the breast, and fixed it on the middle of the sternum, as I afterwards discovered, pulling the instrument with my right hand, and the body of the child with the left, I endeavoured to extract. Finding the parts tear down, and that the shoulders did not advance, I pushed the crotchet further up, and got a firm hold above one of the clavicles, which brought down the shoulders, and the head followed with little difficulty, the child being small.

"This was a caution to me in the sequel, to examine the position of the head before I brought the breech into the passage, that I might raise it, so as to prevent any such obstruction."

CASE II.—"Being called by a midwife in the morning, I was told that the membranes had broken about eleven at night; that the breech presented; and though the pains had been strong, yet it had not advanced in the least for two or three hours, notwithstanding the efforts of the midwife, who had tried several times, with all her force, to bring it along.

"As the woman and the pains were now weaker, I tried, while she lay on her side, to help along the breech, with the assistance of my fingers, introduced to the outside of each groin. This method not succeeding, I pushed up the breech with my right hand to bring down the legs, which lay extended up the fundus uteri, towards the left side; but the contraction of the uterus was so great, that although my hand was up at the legs, I could not possibly bring them down; the pressure of the breech, which I could not raise higher than the brim of the pelvis, joined with the narrowness of the same, so pressed and pained the muscles at the fore part of my arm, that I was obliged to withdraw it two or three times. These attempts proving abortive, I turned her to her knees and elbows, and introduced my left hand, as the most proper when in that position, and the legs to the left side. The breech receded further, and my arm was not so much confined; but the contraction of the uterus was so great at the fundus, that I could not possibly bring down the legs, although I

rested several times, to keep up the strength of my hand and arm; at last they were so fatigued and cramped, that I was obliged to desist. Being afraid of tearing the uterus from the vagina, I altered her from this position to her back, keeping her shoulders high, and tried again, in time of pain, to help the breech along, as at first, but to no purpose. I then had her breech raised with pillows, and her head and shoulders laid lower; then I pushed up my right hand, that was a little recovered from the former fatigue, but failed in this also, after several strong efforts.

"I was now so wearied that I was obliged to rest, and consider what was next to be done. The child, I found by these trials, was large, and the pelvis distorted at the upper part of the sacrum; and indeed the projection of these bones had bruised and hurt the back part of my hand at the last trial. By these several endeavours, the placenta, I suppose, being partly loosened from the uterus, brought on a discharge of blood, which made me afraid of tracing up again into the uterus. I attempted to bring the child double, with my fingers on the outside of the hips or groins, in time of the weak pains; but finding this was to no purpose, I introduced the curve of one of the handles of the forceps on the outside*, betwixt one of the thighs and the abdomen of the child. When I found the point sufficiently through betwixt the thighs, I introduced two fingers of my left hand to the groin of the opposite hip, then pulled with that hand and the blade of the forceps with the other; but still finding this force was not sufficient, I introduced the handle of the other forceps at the other side, and pulled by both with greater and greater force, which moved the breech to the lower part of the pelvis, and the hams below the pubis; but I found, in time of pulling, that one of the handles slipped from the joint on the thigh, which it fractured. I then brought down the legs, and after turning the fore parts of the fœtus to the back part of the uterus, I brought down the body, and tried to deliver the head, as described in the cases where the legs or breech presented; but all these different methods failing, I tried first to deliver the head with the short forceps; but they slipping several times also, I was obliged to take the assistance of the crotchet in the following manner.

"As the body and arms were delivered, and the neck stretched to a considerable length, I directed an assistant to hold up the body of the child towards the pubis and abdomen of the patient, by which means I had more room to introduce the fingers of my left hand up betwixt the right side of the pelvis and child's head: even this I was obliged to raise, to come at the os uteri. I then

* At that time made of such a form as to admit of the application. Wooden handles were afterwards substituted.

with my right hand introduced the crotchet along the inside of my left (the point towards my hand) to the head, then turning the point to the *os frontis* of the child, which lay to that side, I pushed up the instrument betwixt my fingers and the left temple (which lay toward the right groin) to the upper part of the frontal bones, where I tried to fix the point; but this being a straight crotchet (for I had not then contrived the curved crotchet, which is principally useful in this case) the point did not take sufficient hold, or go sufficiently up to fix in the skull, but slipped two or three times, and only tore down the scalp. I then withdrew the crotchet in a cautious manner.

"After having rested a little, I again introduced my left hand in the same manner, but more backwards, and the crotchet along the right temple, above the fore part of the ear, where at last, with some difficulty, I fixed the point. I now brought down my left hand, took hold of the crotchet with it, laid the body of the child on that arm, and placing the fore and middle fingers of my right hand over the shoulders, and along each side of the neck, I began to pull down the head, and gradually increased the force. Finding the crotchet had a sufficient hold, and did not slip as before, and that the head did not yet begin to move, I stood up, and pulled the body and crotchet upwards to the pubis, with great force, which brought down the forehead to the lower part of the pelvis, at the right side of the *sacrum* and *os coccygis*: then turning it more backwards, I delivered the head, by bringing it with a turn upwards from below the pubis, where it turned as upon an axis, and prevented the laceration of the *perinæum* and parts below, which at that time were stretched in form of a large tumor.

"I examined the child's head, and found the skull was torn open about two inches at the above-mentioned place, and some of the cerebrum had been evacuated in time of pulling; a circumstance which diminished a little the size of the head.

"When I was first called, I desired the midwife to allow my pupils to be present; a proposal to which she and the woman assented, but restricted the number to four, on condition that I should deliver her without any other consideration for my trouble.

"This case fatigued me so much, that I was scarce able to move my arms to my head next day; and although the weather was not warm, I sweated excessively."

CASE III.—"The woman was young and strong. This was her first child; the membranes broke the day before; she had strong pains all night. When I arrived in the morning, I found the shoulder forced down to the lower part of the pelvis.

"Having placed her in a supine position, with her breech high and her head and shoulders low, I was obliged, after dilating

the os externum slowly, to use great force before I could raise the shoulder, so as to introduce my hand into the uterus. I found that the left shoulder presented, the head was turned back to the right, and the fore parts to the back part of the uterus.

"The position being known, I tried to push up my hand to come at the feet, which were folded up to the fundus uteri, but turned, in operating to the right side. Finding that I could not possibly reach them with my right hand, which was now beginning to be weary and cramped, I withdrew it, and attempted to introduce my left; but the head was so firmly engaged at the right side, that I could not possibly gain admittance. I again tried with my right, and repeated one effort after another, changing hands, and altering the position of the patient, till I was at last excessively fatigued, and obliged to desist. I rested about half an hour, considering what I should do next, and waiting until I should recover the use of my arms.

"By these efforts, and the exertion of great force, a considerable flooding was brought on; and this alarmed me not a little, especially as it was one of my first cases, and I had not yet attained that calm, steady, and deliberate method of proceeding, which is to be acquired only by practice and experience. I had over-fatigued myself, from a false ambition that inspires the generality of young practitioners, to perform their operations in the most expeditious manner.

"Finding I could not reach the legs, I insinuated my right hand up to the left side of the child, and along that introduced a crotchet with my left above the ribs: there this instrument being firmly fixed, I withdrew my right; then taking a firm hold of the handle of the crotchet with that hand, I pulled down the side, while I pushed up the shoulder with my left. By these means, after repeated trials, and using a good deal of force, the head and shoulders were so raised, that I was able to bring down the body double, and the head followed.

"I was glad to find, that although the child came in this manner, and all of a sudden, the woman was not at all lacerated or hurt.

"When I examined the child, I found the crotchet had fixed first on the left side of the belly, which it had torn open, as well as the false ribs; so that most of the contents were evacuated, and the body was allowed to pass along double.

"One mistake I made at first, fatigued me much before I was aware: my hand had passed up on the outside of the membranes."

CASE IV.—"The midwife told me, that when she was called the membranes were broken, and the hand lay in the vagina. A gentleman in that neighbourhood had been called, and attempted delivery; but hearing I was sent for, he took horse and rode off.

" I found the arm, shoulder, neck, and part of the ribs, pulled without the os externum. When I enquired of the midwife, if these parts were forced down in that manner by the pains? she said, that before the other practitioner came, the pains had pushed the child so low, that the arm came out; but that she had folded it up again into the vagina, and kept it there till he arrived. She owned, that after he had failed in attempting to turn the child, she assisted him in pulling at the arm with great force, but could not bring the body further; and when he proposed taking off the arm, the woman desired I might first be called.

" I then, with the midwife, inspected the parts, because I could find no fundament, and shewed her that the vagina and rectum were torn into one.

" The arm, though not much swelled, was livid, as well as the other parts of the foetus, that appeared externally; for it had lain in that manner three or four hours at least, from the time I was sent for.

" I never expose the parts of my patients, except on such extraordinary occasions, when it is necessary to observe whether any harm has been done.

" After I had endeavoured, without success, to push up these parts into the uterus, first by placing the woman in the supine position, and afterwards on her knees and elbows, I was obliged to introduce the crotchet, and deliver the child in the same manner as directed in the former case.

" The parts were much inflamed; but by the application of bread and milk poultices, the swelling subsided, the lacerated parts digested, and she with difficulty recovered.

" About two months after her delivery, being in that part of the country, I called at her house, and, contrary to what I had observed in all other cases of such large lacerations, in which the parts are commonly so weak as not to be able to retain the fæces, the parts, in her, were so contracted, and the passage was become so narrow, that she voided them with great difficulty."

CASE V.—" The midwife called on me, and begged I would prescribe some medicine to promote the delivery of a woman whom she had attended two days; she said the membranes had broken soon after she went thither, and one of the arms coming down, was pushed without the parts, but she had kept it warm. I told her, the woman should have then been delivered, and no medicine could do any service.

" In about two hours I was sent for, and found the fore-arm without the os externum, much swelled. The woman was little, not young, and this the first child. I tried several times to push up the arm and shoulder of the foetus, but was prevented by the largeness of the arm and smallness of the pelvis. I attempted to

bend the arm (which was the right), so as to fold it up in the vagina, that I might push it up before my hand; but the swelling was so great at the elbow that I could not bend it. I then pulled and twisted round the arm, and endeavoured to separate it from the shoulder, but could not with all my force. I pushed up the fingers of my left hand to the armpit, and tried to snip through the skin and ligament; but it lay so high, and was thrown so much forwards by the distorted parts at the brim of the pelvis, that I could not get up my fingers or scissors sufficiently to that part. I wrapped the fore-arm in a cloth, and pulled and twisted it with great force, so that at last it separated at the elbow. I was sorry for this incident, apprehending there was less hope of pulling off the arm, when the firm hold of the fore-arm was lost; however, contrary to expectation, I found the same advantage as if it had been pulled from the shoulder; for the arm being short, easily folded up in the vagina to the side of the foetus. I now gave both the woman and myself some respite, that we might recover from fatigue. Having resumed my labour, the arm and shoulder were pushed up into the uterus. Then I felt at leisure the position of the child. The head folded back betwixt the shoulders, above the pubis; the left arm and leg lying over the breast, and to the side and back part of the uterus. I now repeated my efforts, and, by pushing up higher, got a firm hold of that foot betwixt two of my fingers; pulling down this, and pushing up the breast, I brought the leg down without the os externum. Having wrapped it in a cloth, and taken a firm hold with my right hand, I pushed up my left, to try to bring in the right hip, which lay over the pubis; but found it impracticable to reach so high, on account of the narrowness of the pelvis. Endeavouring to pull the left leg and thigh, so as to bring the hips lower, after reiterated efforts, and increasing the force every time, instead of bringing the body lower, I pulled the thigh from the hip. I was obliged to rest again, to recover from this second fatigue. I again introduced my right hand into the uterus, and with great difficulty brought down the right leg; but the pelvis being too narrow to allow passage for the body, which was large, I had recourse to the crotchet, with which I tore open the belly. I was obliged to use the same method in tearing open the breast, to bring down the shoulders and the arms; and afterwards to rest a considerable time to recover my strength, which was almost exhausted, before I attempted to deliver the head, which I was certain would require still a greater force. Finding the face and forehead were to the left side, and a little forwards towards the left groin, after getting an assistant to hold up the body of the child, I insinuated my right hand at the left side of the sacrum, and introduced a crotchet in the same cautious manner as de-

scribed in the second case of this collection, along at the left side of the bones that were distorted, and formed a large hollow at that part, which allowed room for the instrument to pass easily. Having now altered my crotchet from the straight to the curved form, the point went higher up, and fixed near the vertex. Bringing down my right hand, I pulled gently at first, till I found it was firmly fixed; I then began to extract with greater force, while at the same time I pulled the body with my other hand. By reiterating these efforts, I got the head at last delivered, but not before I changed hands, and was obliged to pull the crotchet with my left, which brought the forehead from the left groin, backwards to the side of the sacrum.

"The crotchet had torn all the left bregma, down to the temple; a laceration, which allowed a large part of the cerebrum to evacuate, and the bones of the cranium to collapse. The great force used in turning the fœtus had brought on a flooding, which diminished on the delivery of the child and placenta; part of the last, however, adhered so firmly to the right side of the fundus uteri, that I was obliged to separate it with the fingers of my left hand. As the woman complained of great pain, and her pulse was a little sunk from the large discharge, I ordered an anodyne mixture, with twenty drops of laudanum and half an ounce of syrup of poppies, which had the desired effect, by procuring rest and a plentiful perspiration; and although the weakness and pains continued for many days, yet she recovered.

"About two years after I was again sent for; but being engaged, another gentleman was called; who told me that he was obliged to open the head, and was vastly fatigued in extracting both it and the body: this violence threw the woman into a violent fever that destroyed her.

"Probably the losing so much blood when I delivered her, might prevent the inflammation and fever.

"This case so fatigued me, that I was obliged to shift, and go to bed after I was carried home in a chair. My hands were so swelled that I could only use my fingers like a gouty person for a day or two."

CASE VI.—"There had been two midwives with this woman for two days, one of those was her mother. Both arms had been down most of that time, and these they had often pulled to bring the child as it presented.

"I found both arms pretty much swelled, and one was almost pulled from the shoulder; for it only hung by part of the skin, which I snipped off with the scissars.

"I inspected the part, and found the remaining arm and parts of the woman livid, but not torn.

"The patient was then flooding, and had lost a great deal of

blood, from which, joined with the long fatigue of labour, her strength was so exhausted, that she appeared in a dying condition.

"I suggested my apprehension to the husband and friends, who begged me, if possible, to deliver her before she expired.

"Contrary to my expectation, although the breast was pulled low down, I easily pushed it and the arm up into the uterus, and brought the child footling.

"I had no hopes of her recovery, although she seemed to revive a little, from the joy of being delivered; because I was pretty certain that a mortification was begun, from the livid appearance of the external parts, and her complaining of no pain, when I introduced my hand into the vagina and uterus.

"The placenta was all detached, and lying loose in the uterus. This was not her first child. I was called in the evening, and she lived till next morning."

CASE VII.—"One of the arms had descended, and been so pulled by the midwife, that the shoulder was down to the os externum.

"I tried to raise the shoulder by passing up along the arm, which was excessively swelled and livid, it having been down in that position above four-and-twenty hours; but I could not introduce my hand. Considering that the child was probably dead, from its being so long in that situation, and its not being felt to move by the mother for many hours, I thought it was most expedient to separate the arm from the shoulder. This last being low down, I guided the points of the scissors to it, and easily separated the arm, partly by cutting the skin and ligaments, and partly by pulling and twisting.

"In pushing up the shoulder into the uterus, I found that the pelvis was small and the child large. I brought down only one of the legs, which was pulled off as in Case V., then with great labour I brought down the other, which gave way also by the force of pulling.

"I was afterwards obliged to tear down the body with the crotchet, and even to fix the same instrument on the head.

"Being the straight kind, it slipped several times, and hurt the inside of my left hand in two places, while I guarded the point from hurting the vagina of the patient. At last, gaining a firmer hold above the ear, I fixed the fingers of my left hand over the shoulders, and pulled with great force, both at the body and crotchet. Finding it did not move, I wrapped a cloth round the shoulders, and pulled at them with so great force as almost to separate the head. By these means the head was brought a little lower; yet, not daring to exert again such violence at the body, I pulled by the crotchet, which brought the head down to the os externum, and in raising the body and pulling it upwards, it at last separated.

"The head, however, being brought low, I took hold of the under jaw, and pulling at that, while I exerted more force at the crotchet, the head was also delivered.

"The woman behaved with great courage, although she had been much fatigued, and weakened by a flooding brought on by the great force that I was obliged to exert in turning the *fœtus*. This woman also recovered, contrary to every body's expectation."

CASE VIII.—"The midwife told me, that when she was called, the membranes were broken, and although the mouth of the womb was very little open, she found that the child did not present fair.

"A gentleman was sent for, but he being otherwise engaged, could not attend. Mr. Smith was then sent for at six, and finding that the pains, which were frequent and strong, could not push down the presenting parts to open the os uteri, he tried to stretch it; but not being able to dilate more than to introduce two fingers, and a flooding coming on, he sent for Mr. Mackenzie, who then attended me as senior pupil.

"He likewise tried to dilate; and finding, although the os uteri yielded considerably, he could not possibly introduce his hand, he desired I would come about seven."

"He told me, that the funis was fallen down into the vagina, and that he had not felt any pulsation in it; that he had dilated the os uteri considerably; but that his hands being cramped, and fatigued, he was obliged to desist.

"I felt the woman's pulse, which was still pretty good, and not much sunk. Considering that the pains were now weak, and could do little service in pushing down the child to stretch the os uteri; being also afraid that the woman would grow weaker and weaker, and having never before failed in stretching the os uteri in women that had children before, which was her case; I resolved to attempt it without delay.

"I examined in the side position; but as that and the supine had been tried before, I had her placed on her knees and elbows, and found that the mouth of the womb was so largely opened, as to receive all my fingers up to the middle of the third joint; but I could not stretch it so as to introduce my hand.

"I then rested, and felt more exactly the position of the child. The breast and neck presented, and the chin was to the right ilium. I then considered, that if I could bring in the face, and keep up the woman's strength, the pains might return, and force them down gradually, dilating the os internum at the same time.

"For this purpose I had her changed to the supine position, and introducing the fingers of my left hand, with great difficulty got two of them above the chin into the mouth, and tried to pull it from the side into the middle of the pelvis; but the neck and

breast were so engaged in the middle, and the head pressed back on the shoulders, that I could not possibly alter the position.

" Being now certain that the child was dead, I introduced a crotchet covered with the sheath along the inside of my left hand, and fixed it, when unsheathed, in the under jaw. Finding, however, that it would tear down the jaw, and not bring in the face, I withdrew the instrument.

" The funis all this time was a great interruption by falling down and entangling my fingers. I again gave the woman some respite, especially as she was now growing a little faint, and the flooding, which had abated, was returned.

" After she was recruited, I tried again to dilate the os uteri, having found in other cases, that it dilated easily when the patients were faint and weak; but found the same difficulty as before.

" I once more endeavoured to introduce the crotchet at the other side, to come at the shoulder, in order to try if the pulling down of the parts would stretch the os uteri better than pushing up.

" I was apprehensive of using any greater force by pushing up, lest I should tear the uterus from the vagina; but finding that I could not fix the crotchet to advantage, I again withdrew it.

" All this time the os uteri felt as if it was two inches thick. The woman being much exhausted, I had her laid in an easier position, and let her lie a considerable time, both to recruit her spirits, and to see if the pains would return. In the mean time I sent for Mr. Burnet, who was first called, who being now disengaged, came immediately. He also endeavoured to introduce his hand; but finding it impossible, we all agreed to desist, and to wait, as the flooding was abated. For, although she had lost a good deal of blood, yet it had been very gradually discharged.

" Our intention was to support her with broths and nourishing things, and as she inclined to sleep, to indulge her with some repose. Meanwhile we went to breakfast at a coffee-house, where we proposed to wait the issue of this uncommon case. I resolved, if happily she should recruit after some rest, and recover from the low faintish state in which we left her, to try again in a gentle manner to stretch the os uteri; and if that did not succeed, to dilate it with the scissors, as in the Xth and XVIth cases under this head.

" In about half an hour, one of the pupils being sent to see how the patient rested, was met by the husband coming in a great hurry, to acquaint us that his wife was fallen into convulsions. Before we reached the house she had expired; a circumstance which surprised us not a little. I indeed was in hope when we left her, that she would have enjoyed some sleep, which might have recruited her strength; and then the os uteri would probably

have yielded, as I had found in the like cases before. I had even in a few cases known the os uteri tear, and the patient recover.

"Rather than let the woman expire without any chance of being delivered, I had determined to dilate the os internum. This expedient, however, I think should never be attempted, but in the last extremity.

"I reflected after this sudden change, as the flooding was not violent, and the woman at first not so very weak, whether it would not have been better practice to have waited longer for the efforts of nature to open the parts.

"This case ought to be a caution to all practitioners, to wait the efforts of nature, and not to use too great violence in stretching the os uteri, especially when the patient is not in absolute danger.

"On the other hand, if these efforts had not been made till the woman was weak, I should have thought we were too long in assisting; especially as I never met with a case of this kind before, where I did not deliver the patient.

"The membranes had broken the evening before, and the midwife, by an uncommon feel of the parts that presented, suspected that the foetus presented wrong.

"Mr. Burnet, who had the care of the poor of the parish, when called, was not at home. She was in strong labour most of the night, but had not force to push down the child in that double position to open the os internum. When the first pupil arrived at six, the pains became weaker, and a small flooding had begun.

"All these circumstances considered, seemed to indicate the practice we followed preferable to delay, especially as we did not expect that the patient would have been carried off in so sudden a manner."

CASE IX.—"This case happened to one of the poor women, whom all my pupils were allowed to attend. One of them delivered her of one child, and my midwife finding that there was a second presenting wrong, immediately sent for me. The membranes of the second had broken immediately after the first was delivered.

"Finding the face presented, and having put the patient in a supine posture, I allowed all present to examine the position.

"Then, as the waters were not all gone, I very easily turned the head up to the fundus, and brought down the legs.

"I observed, that the child had been dead many days, from the circumstance of the legs being livid, and most of the scarf-skin stripped off. A cloth being wrapped round the legs, I tried to pull down the hips; but could not bring them further than the brim of the pelvis. I introduced my right hand betwixt the sacrum and thighs, and found that the obstruction proceeded

from the abdomen's being excessively swelled, and turned to the back part of the uterus. I again pulled the legs with greater force; but began to be afraid they would separate from the body. I introduced the fingers of my left hand to the swelled abdomen, and along that the scissars with my right, and pushed them into the abdomen of the fœtus, just above its pubis. Withdrawing the scissars, I introduced two fingers into the opening, and pulling there with my fingers, while I grasped the legs with my other hand, tried to bring down the body; but being obliged to increase the force, all of a sudden and unexpectedly the hips separated from the body at the loins.

"Having now no hold to pull by, I introduced my left hand into the uterus, and along that the crotchet with my right: fixing this instrument on the ribs, I began to pull; but the hold gave way. I made several attempts in the same manner, fixing the crotchet higher and higher, and in different places; but as often the parts tore down, though the body did not move.

"I endeavoured to keep it firm with my left hand, while I fixed the crotchet with my right; yet the body was so slippery, that it could not be held firm.

"My being obliged to bring out my left hand, as often as the hold gave way, with the crotchet, to guard its hurting the patient or my hand, fatigued me so much that I was obliged to rest two or three times. At last, tracing up with my hand further than before, I again introduced the crotchet, and got a firm hold above the shoulder; then bringing my hand lower down, I took hold of the vertebræ of the back. By these holds I brought down the body, and the head followed easily, as the child was not large.

"I have had some cases of the same kind since, in which the delivery was retarded by the tumefaction of the abdomen; but I pulled at the legs with more caution, for fear of the same accident, and brought down the body with the blunt-hook or crotchet."

CASE X.—"The midwife informed me, that she was called about two in the morning, and found the woman in labour, with a small degree of flooding; but that it grew more violent as the pains increased.

"She signified to the friends, that the patient was in great danger, and about eleven in the forenoon I was called: the membranes were broken, and the discharge diminished. In time of a pain I examined, and found the face of the child presented. The os uteri was open about the circumference of half-a-crown: it felt rigid, but very thin.

"This was her first child, and labour had come on two months before her full time.

"Her pulse was low and weak: she had fainted several times;

but seemed to recruit a little, when told that more assistance was called, and begged earnestly to be relieved.

"I ordered her to take, every now and then, a little red wine burnt; and waited to see if the pains would return as she recovered strength.

"I also prescribed an anodyne and astringent mixture, two spoonfuls to be taken every half hour.

(No. 14.) R Tinct. Rosæ ʒiv.

Sp. Nucis Moschat. ʒiʒ.

Tinct. Opii. gtt. xxx.

Syr. Papav. alb. ʒʒ. Misco.

"I was again called in about two hours after, and informed that although she lay quiet, yet she had enjoyed no sleep; and that the faintings had returned.

"As she seemed to be in imminent danger, I tried, as she lay on her side, to stretch the os uteri, and my efforts seemed to bring on a weak pain; but finding this had no effect, I gradually dilated the os externum, till I could introduce my hand into the vagina, and then began to stretch the os internum with the fingers of my left hand contracted in a conical form; but although the os uteri was so dilated as to receive my thumb and four fingers, and felt as thin as the edge of a piece of parchment doubled, I could not stretch it wider, even although I proceeded in a slow manner and at intervals. Finding the flooding return, and being afraid she would be lost if not soon delivered, I told her friends, this was the only chance she had of being saved. I went to work again, and used greater force than before; but to as little purpose: I could do nothing but cramp and weary the fingers of both hands.

"While I rested, I began to reflect that I had known some of my patients recover in cases, where the uterus tore in stretching, and that some of them had even recovered without any unfavourable symptom following. As this, therefore, felt so thin and rigid, I found no way could be taken but to make an incision on the os uteri. For this purpose I insinuated two fingers of my left hand into it, and with my right introduced a pair of scissors betwixt the fingers. With these I endeavoured to snip the parts, but finding I could not manage so as to cut through the edge, I pushed one of the points within three or four lines of the edge, and the other on the inside, and snipped through that part which was at the left side, but a little forwards, to prevent the laceration that happened afterwards, from affecting the bladder, rectum, and large vessels at the side of the uterus.

"Withdrawing the scissors, I introduced my left hand, and found the snipped part gradually gave way so much as to admit my hand, though slowly, and with some difficulty, into the uterus.

where I easily turned and delivered the child by the feet. The child, however, was dead.

“ Although there was a pretty large discharge, yet it gradually abated after the placenta was delivered. She continued in a weak faintly condition till the evening, when she fell into little slumbers; but was attacked every now and then with cold and hot fits. I had given her several times a little of the anodyne mixture, also some burnt wine and chicken broth to support her, and recruit the exhausted fluids.

“ Next day, as the cold shivering returned once in three or four hours, I ordered some extract of the bark to be dissolved in red wine, and given betwixt the shiverings. The discharge was moderate; but nature being so much exhausted, she died on the fourth day.”

CASE XI.—“ I was called in the evening, to a woman near forty, in labour of her first child:

“ The midwife informed me, that she had attended the patient two days; that the pains had been strong since morning, and after the waters came off; but that the head lay high, and did not advance.

“ I understood by other accounts, that the woman had been put too soon on labour, and was much fatigued. I felt both the os internum and externum largely open, by the midwife's having, as she said, worked hard to bring down the child, whose head lay above the brim of the pelvis.

“ The woman being much fatigued with fruitless pains, that were much abated, I had her put to bed, to try if she could enjoy some rest; and desired her not to force down but when the pains obliged her. As she was costive, her pulse full, and quicker than usual, and her skin hot and dry, she was immediately blooded, and procured plentiful passage with a clyster. She enjoyed several refreshing sleeps betwixt the pains till morning, when the pains grew stronger, but still had little effect in advancing the head.

“ The pains again falling off, I was apprehensive, that if I waited longer the woman might soon be in danger, and not imagining that the child was so large, I thought it was better to try and deliver it by the feet. It required a great force to turn the child, so as to bring down the legs, and even after that, to deliver the body and arms; so that I was obliged to rest several times. I afterwards used all the caution imaginable to bring down the head, so as to save the infant; but at last was obliged to increase the force to deliver the woman, and pay less regard to the child. By these last violent efforts, both the under jaw and neck began to separate. I was obliged to desist, as I found that one of the joints of the neck was entirely separated, and that only about one half of the skin of it remained untorn. I thought it would be easier

to fix the crotchet on the head now, than when separated from the body; for, although the hold at the neck was slender, yet it kept the head steady. I directed an assistant to hold up the body of the child, while I introduced my left hand along betwixt the right side of the vagina, as the woman lay supine. Then I introduced the crotchet, and delivered the head, though not without a good deal of force, and difficulty in fixing the crotchet, which was the straight one.

"Even if I had at this time known the use of the forceps, they would have been of no service in this case; because the head was so large, and so little advanced in the pelvis. The fault was in not waiting longer; for I have had many cases since, where, waiting patiently, the head has advanced, and been delivered with the pains or with the forceps. The pelvis was not narrow."

CASE XII.—"This woman was remarkably tall, and to outward appearance well formed for bearing children; but on enquiry after delivery, I found that she had been sickly and weak for the first four or five years of her infancy.

"I was called to her, when she had been long in labour of her first child, and was obliged to diminish the head before I could deliver. I was called sooner when she was in labour of her second; and although the head presented, I tried to save this child, by bringing it footling. The body passed with difficulty, from the projection of the last vertebra of the loins, with the os sacrum. After I had brought down the body, I endeavoured, before the arms came down, to move along the head, first by pressing down the shoulders as she lay in the supine position; then I attempted to bring down the forehead, by pushing upwards: finding, however, that the forehead rested against the distorted part, I tried with my fingers to press it to the side; but, the arms filling up the parts at the sides of the pelvis, by the brim, I was obliged to bring down both arms, in order to obtain more room. After having pushed the forehead to the right side, which seemed to be the widest, I introduced my fingers into the mouth, and began, as in the former case, to pull in a cautious manner; but finding it did not move downwards, I exerted more and more force, till I found the neck giving way, and it was impossible to save the child. I was then obliged to introduce the curved crotchet, which was the first time that I had occasion to use it in such cases, since altered from the straight; and found it particularly useful on this occasion; for, instead of fixing on the side of the head, it went up to the sagittal suture, which it tore open, and making a large aperture, it had a firm hold on the bones of the forehead; by these means the cerebrum was sooner evacuated, the head collapsed, and was easily delivered.

"I was called again in her third labour; and, as the head

presented, proceeded in the delivery with all the precautions mentioned in lingering or laborious cases, till she was almost exhausted; but after all, was at last obliged to deliver as in her first labour.

"The children were all large. In her fourth pregnancy, she was luckily taken, in the seventh month, in labour, in consequence of a looseness and super-purgation, occasioned by eating too much fruit. This child, though the head passed with difficulty, was delivered alive."

CASE XIII. and a Supplement to **CASE I.**—Dr. Smellie was sent for by an accoucheur in London, to a young woman in labour of her first child. The latter had been called about two or three in the morning, and found a leg of the child presenting; but when he tried to bring down the body of the child, he found that it was large, and the pelvis narrow. He sent immediately for another practitioner, who brought down the body, but could not deliver the head; neither did they choose to use great force, for fear of separating the body.

"I arrived," says the doctor, "about eight o'clock, and was glad when I found there was no flooding, and that the woman was strong, and no way sunk or worn out with the labour.

"I had her laid across the bed, her breech a little over the side, and two of the gentlemen supported her legs; one of them also supported her body, till I introduced my right hand into the vagina.

"I found the face lay backwards a little to the left side of the pelvis. I felt the lower vertebra of the loins and upper part of the os sacrum jet in so much, that it was impossible to deliver the head without diminishing its bulk. As we were certain, from the umbilical chord, that the child was dead, it was in vain to fatigue the woman and ourselves, by attempting to bring it away entire.

"I pushed up the ends of my fingers, that were already in the vagina, past the os internum, but with difficulty, it being strongly contracted round the lower part of the head; and by the largeness of the head, and narrowness of the pelvis, they were very much squeezed. I endeavoured to raise the head higher, to make more room, but could not, although I used a good deal of force. Then taking the handle of the crotchet in my left hand, I introduced it with the point next the child's head; but at first trial could not get it to pass my fingers. I withdrew them to make more room; but the os internum contracted again so close to the head, that I could not get the end of the crotchet to pass. I again tried to force up the head with all my strength, and with great difficulty raised it a little higher; a circumstance which, affording more room, the head passed the os internum, but not without bruising my fingers; and the point slipped a little to one side: this I again turned

to the head. As I withdrew my fingers, the point slipped up easier, and I felt it slide along to the crown of the head.

"I then brought down my right hand, and taking hold of the handle of the crotchet, used the same precautions as mentioned in Case II., and delivered in the same manner, by fixing the point firmly, and turning the curved part of the crotchet over the forehead.

"By pulling, the head was opened in the same manner, and delivered, but not without a great deal of force: the external parts of the woman were much swelled, but she was not torn."

CASE XIII.—In the medical essays of Edinburgh (Vol. IV. Art. 33) we find the following account of coagulated blood extravasated upon the uterus, with extraordinary thickness of the womb in a laborious birth, related by Mr. John Paisley, surgeon in Glasgow.

"Authors having differed," says he, "as to the thickness or thinness of the uterus of a woman with child; some with Mauriceau and Dionis, asserting that it grows always thinner as it extends, whilst others, I may say almost all anatomists, affirm, that it turns thicker as the woman advances in her pregnancy, and draws nearer to the time of her labour: or, to speak more properly, that in the several stages, the thickness of the sides of the womb keeps the same proportion to its cavity as in a natural state, the sinuses and vessels being proportionably enlarged as the uterus is extended. I say, this having occasioned some disputes among anatomists, I thought proper to send you the following history of a woman who died in child-labour, where I had an opportunity of examining the thickness of it, and at the same time, of discovering a fatal mistake in the midwife who attended her, who, by delaying to call for assistance in due time, was the unhappy occasion of the death both of mother and child.

"Upon the 10th day of June, I was called to a woman in labour, about middle age, of a low stature, and pretty fat, who had born several children; and I found her in an exceedingly low condition, with cold sweats, and severe faintings, her extremities cold, without any pulse, and unable to utter one word, though she shewed some signs of being desirous to speak with me. The midwife that attended her had gone off upon my being sent for, and left a young practitioner whom she was training up in that business, who gave me the following account of the poor woman's case; viz. That she had been several days in labour; and that all along the midwife imagined affairs went in a very good way, and the child, as she thought, in a very right posture, though after the waters broke, the child's head had never advanced by the strongest pains. Hence the midwife either blamed the woman for not bearing down strong enough when the pains came upon her, or else pretended that the pains were too faint and languid; and as there was no

flooding, she never apprehended any danger, and therefore cheered up the mother and friends with the hopes of a good issue by a little patience; and as she had a good deal of other business upon her hands, she frequently left the poor woman for half a day together, and upon her return still found all things in the same situation she left them in.

“ From the first day the woman was taken with her pains, she scarcely made one drop of water; wherefore, on the fifth, the midwife suspecting that to be the cause of the birth's being retarded, sent to an apothecary's shop for a strong stimulating diuretic mixture, to increase her pains and provoke urine, being assured all things were right, only the pains were too faint, as no doubt they were, when the woman had been so long fatigued with her labour. This having no effect, a stronger one was called for, which proved likewise unsuccessful, and all things continued in the same state, only that the woman's strength was continually decaying, till the sixth day at midnight, when I was sent for, and found her in the situation above mentioned. It is evident, that when matters were brought to this pass, the poor woman had not so much strength left her as to bear the fatigue of being put into a posture for being delivered, and that it was impossible to afford her relief. I acquainted the friends with it, assuring them that it would be madness to attempt it in these circumstances, being persuaded she could not live above a quarter of an hour, which accordingly happened, she dying in a few minutes. Next day I prevailed with the friends to have her opened, and after I had cut the teguments, and laid them back, I was surprised to meet with a black membranous body, like coagulated blood (which it in reality was), covering all the fore part of the uterus, though distended so much with the child. This I easily separated in one cake from the uterus, and when it was spread upon the table, it was about a foot and a quarter long, and a foot wide, and a quarter of an inch thick. Whether this proceeded from the oozing out of blood from the substance of the uterus, by the strong pressure when the pains were violent, or from the rupture of some small vessels, either of the uterus, or some other part of the abdomen, I do not determine; for I could not observe the least appearance of any ruptured vessels in either, after the most accurate search I could make, nor was there one drop of blood in any other part of the cavity of the abdomen. I know not if this is a thing that is always observed in such cases, having had no opportunity, before that time, or since, to examine any such subject; though no doubt it is a thing may readily happen in very laborious births; and then it is no wonder if violent after-pains, fever, inflammations, and their consequences, follow; for in such a state of body as women in these circumstances are generally allowed to be in, it is scarcely to be supposed that coagulated blood can easily be dissolved, and again absorbed by the vessels, in so large a cavity

as that of the abdomen ; wherefore by its stagnation and putrefaction it may bring on a train of bad symptoms ; the cause of which lying entirely out of the physician's power to know, it need be no surprise though he fail in his attempt to remove them : and I do not know but this may be one of the chief causes of those many disorders and frequent deaths that happen after very violent and laborious births ; though there are many other causes well enough known, which are capable of producing such-like effects.

" This phenomenon being what had never occurred to me either in reading or practice, I thought it would not be unuseful to acquaint the world therewith, to prompt those of greater abilities, or who have more leisure and more opportunities of meeting with proper objects, to enquire if such a case often happens ; how far the causes hinted are just, or what other causes may probably be assigned for it ; what sign it may be discovered by ; what method of cure might be proper in such a case ; and the like.

" When I had removed this coagulated blood, I observed a large sac or bag full of water lying along the sides of the uterus, above the intestines, and reaching as high as the kidney of the right side. Upon feeling it all round with my hands, I found it was loose at its superior part, and appeared to come out from the pubis, where only it had an attachment. This, upon examination, proved to be the urinary bladder, thus distended to a vast bigness, and thrust to one side by the pressure of the uterus on the fore part of the abdomen. I opened it, and measured the urine it contained, no less than eight English pints, or a Scotch quart. The uterus was pretty closely contracted on the child ; and in opening it from the fundus to the cervix, I found it at least half an inch thick in the thinnest part, though a good deal more at its fundus, where I observed the sinusses so large, as easily to admit the end of my little finger into them. The placenta adhered to the fore part of the fundus. The waters having been broken so long before, I could not expect to find the allantois.

" The child had fallen down into the passage, much in the natural way, only with its head a little obliquely to one side, so that part of the frontal and parietal bones of the right side rested upon the pubis and neck of the bladder ; and by the violence of the pains, these bones had been pushed so strongly against the pubis, as to make a considerable indentation in them, and raised an inflammation for an inch or two round the contused part."

" I believe I need scarcely add, that if assistance had been called in time, the swelling of the bladder might have been prevented, by drawing off the urine with the catheter ; and if the child's head could not be easily stirred, then the child might have been turned, and brought away by the feet, as is usual in such cases.

" Hence midwives ought to be advised to call for assistance in due time, especially in a case of this nature, where both the mo-

ther and child's life are in so great danger, though there be no flooding, since it is one of the most difficult cases that can well happen in midwifery; and thereby they may save two lives, and secure their own reputation. Hence, also, physicians and surgeons may take warning, not to trust too much to the report of midwives, who too often pretend all things are in a fair way, and that there wants only some medicine to promote the pains, which they suppose are too faint and languid, because the head does not fall any lower; while it may be owing to the above cause, as well as others mentioned by practical writers, when the giving of such medicines may be of the worst consequence."

CASE XIV. and supplement to CASE V.—The membranes had been broken, and the waters were all gone, before Dr. Smellie was called. The midwife told him the breech presented. Another gentleman had been called, but he being afraid it would turn out a difficult labour, left her.

"When I examined the woman," says the doctor, "I at first imagined a leg and a hip presented; but on pulling the supposed leg, which was lying in the vagina, I found it an arm, and very much swelled. It appeared very plain to me, that the midwife had pulled very strongly at the arm, because it was swelled, and the ends of the bones at the shoulder and elbow were stretched to a considerable distance. She had, after her fruitless endeavours to extract the child, doubled up the arm into the vagina. When I told her it was the arm, she said she had felt the fingers lying, as she imagined, with the leg. However, as it was my business to deliver the woman, I said no more.

"I laid her supine, across the bed; two women supported her legs and thighs; her nates were raised, and brought a little over. I first tried to introduce my right hand betwixt the arm and the os sacrum, but could not pass it into the uterus, from the bulk of the arm, and the projection of the upper part of the os sacrum, with the lower vertebra of the loins: it was the left arm that was down; the left shoulder was pushed in at the brim; the fore parts of the child were towards the belly and left side of the woman.

"Finding, after repeated trials, that I could not get up my hand, and that there was more room at the sides of the pelvis, I turned her to her left side. I renewed my endeavours; but the pelvis being narrow, and the arm of the child so much swelled, I was obliged to desist, and to proceed with caution, and by degrees, lest I should lose the strength of my arms, by working too much, and too long at a time. I next tried to push up the arm into the uterus; but the contraction of this last was so great, that it was in vain to attempt that method.

"As the woman had no flooding, and her pulse was strong, I rested a few minutes, during which I considered, as it was very probable that the child was dead, or would soon die, from the

arm's being so much swelled, and overstrained at the joints; as the meconium, according to the midwife, had for four or five hours been coming down also; and as the pelvis was extremely narrow, it was ten to one that I could not deliver the head without the help of the crotchet. All these circumstances made me think it more advisable to separate the arm at the shoulder from the body.

"To do this with greater ease, I pulled down the arm with a good deal of force, introduced my hand below it, into the vagina, and my finger up to the shoulder; but my fingers were so squeezed betwixt that and the projection of the fore-said bones, that I could not divide it with the scissars; and in my attempts to push up my hand, I found that the fore-arm obstructed me most. I then separated this at the elbow. After having rested a minute or two, I again tried to push up the arm and shoulder; the arm I folded up, and the shoulder gave way a little: but by this time my own right arm was a little weakened, and my hand being cramped, and a little bruised on the back part, from the projection of the bones, I again turned her on her back, afterwards on her right side, and tried with my left hand; but that was in a little time more disabled than the other.

"Once more I turned her to her left side, and rested about five or six minutes. I now found that a flooding was begun, so that there was no time to be lost. I introduced my right hand into the vagina; but the bones backwards still hindered my hand. After turning her a little more towards her belly, I got again the arm folded up to the shoulder, and both raised so high, as to pass my hand up to the fundus uteri. The muscles of the thick part of my arm were so much pressed, that if I had not got one of the feet very readily, I must have withdrawn it again. Grasping the heel and fore part of the foot between my fore and middle fingers, I brought it into the vagina. I then rested a little, and by degrees fixed a noose upon it. I really thought, in the middle of this last effort, I must have given up this method, and have tried to introduce the crotchet, to fix it on the breast or ribs, and by that means tear down the body of the child into the vagina. The feet being brought down easily by the noose, I introduced my right hand, and raised the shoulder and head so much, that by pulling the noose with my other hand, on the outside, I brought the breech down to the brim of the pelvis. After another intermission of a few minutes, I took hold of the leg, being the right, with my left hand, and introduced two fingers of my other to the outside of the left groin; but, after several trials, could not get that hip to advance. I then introduced the crook of the handle of the blunt hook to the outside of the groin. Feeling that the blunt point was past in between the thighs, I wrapped one cloth round the crotchet, and another round the right leg, and pulling

both with a great force, brought down the body and shoulders without the os-externum.

“ The weather was remarkably cold for the season of the year ; there was very little fire ; and yet I sweated so much, that I was obliged to throw off my waistcoat and wig, and put on my nightgown, with a thin napkin on my head. I then endeavoured to deliver the head, by introducing the fore and middle fingers of my right hand into the child’s mouth, which was to the back-part, and left side of the pelvis, but could not move it. I now brought down both the arms of the child, and introduced my right hand into the vagina, and the points of my fingers passed the os internum, along the face of the child. In the mean time I caused one of the women to hold up the body of the child, to give me more room to work. I introduced a curved crotchet, which had a thick wooden handle, with my left, the point to the child’s face, and up along to the crown of the head. It fixed upon the head ; but finding the point a little on one side, I moved it into the middle, by turning the point, and keeping the handle back to the perinæum, and the upper end, in an imaginary line to the middle space betwixt the navel and the scrobiculus cordis of the woman. When this was done, I brought down my right hand, and with it took hold of the crotchet : I laid the body of the child on my right arm ; I placed two fingers of my left hand on each side of the child’s neck, and over the shoulders ; and began to pull with both hands, slowly at first, till I found that the point of the crotchet had a firm hold in the head. I increased the force of pulling the crotchet, and found that it came down about two or three inches, without moving the head. Apprehensive that the point had not entered the skull, but only torn down the hairy scalp, I raised it up to the former place, and renewed my effort. It came down as before, but held fast above the forehead. I then rested, and afterwards began to pull both the crotchet and body of the child with greater force. I found some of the cerebrum coming out, and the head moving a little lower. I continued to rest and pull by turns, until the head lessened, and was squeezed by degrees into a smaller bulk. After it had passed through the narrow part of the brim, it was delivered with great ease. The placenta being already loosened from the uterus, was immediately forced into the vagina. I took hold of the umbilical chord with one hand, and the edge of the placenta with the fingers of the other, by which means it was soon extracted. The uterus soon contracted into a small bulk. I examined with my fingers the perinæum, and found that it was not in the least cracked or torn. The woman bore all these endeavours with great courage ; her pulse continued good and strong ; the discharge of blood was not great, and did rather service, for the parts were lubricated and relaxed by it.

"When I examined the child, I found the curvature of the crotchet had allowed the point to go over the forehead, to near the turn of the hair at the crown, and it had torn open all along the sagittal suture, through the fontanel, and fixed on the thick part of the skull at the forehead, which a straight crotchet could not so easily have done. The opening was about three inches long, and about a third or fourth part of the brain was evacuated. I ordered the woman to be kept quiet, and to drink frequently of warm caudle. I called two days after, and found her pulse strong, quick, and hard, with pains in her back, belly, and head, and a difficulty of breathing; she had got but little rest, and had sweated none: she told me that neither she, nor any of her sisters, could sweat or bear sweating: the discharges had gone on very well, but were abated more than usual that day. I advised that she should immediately lose twelve ounces of blood from her arm, and drink plentifully of barley water, or water gruel. The nurse had given her very little drink. She was soon relieved, and recovered much better than I expected. She was a little woman, and, as I could judge by the difficulty of my hand passing, it was not above three inches and a half, or three quarters, from the upper part of the os sacrum to the pubis. If I had not rested a great many times, and proceeded with caution and deliberation, I should have failed in turning the child; and if I had pulled with too great violence at the body, I should have separated it from the head, which it was very difficult to open and extract in so narrow a pelvis."

CASE XV. and supplement to CASE V.—Mr. Mudge of Plymouth was sent for about eight in the morning, to a woman who had been in labour all night, and the membranes were broken about eight hours. Her pulse was tolerably strong, though very quick, and her countenance very florid; circumstances owing to her drinking plentifully of spirituous liquors.

On examining, he found most part of the left arm hanging out of the passage, together with the cord, which was cold, flabby, and without the least pulsation. The head, as he imagined, was sunk down considerably, inasmuch that he thought nature might be sufficient to push it forwards. He therefore left her, and prescribed some medicines to amuse. He called about eleven, and found no alteration, except that the pulse was so much sunk, that he determined to deliver. Having introduced his hand, and moved it round what he thought the head, which felt loose, and exactly filled up the pelvis, he fixed the forceps with as much advantage and ease as he had done in former cases; but the instrument slipping two or three times, he desisted, and tried to turn, and bring the child by the feet. However, the passage being filled up, he was obliged to twist, and pull off, the arm from the shoulder.

He then, with great difficulty, pushed his hand into the uterus, and found that it was the upper and back part of the shoulder, as far as the spine, which had been pushed down, exactly moulded to the shape of the pelvis. This he all along had taken for the head, which was now found lying above the right side of the pubis, the feet being at the very fundus uteri.

With great difficulty he brought down the right leg, and by pulling at it, and pushing up the shoulder at the same time, he soon extracted the child.

The labour lasted about twelve minutes, and the child was quite putrid*.

CASE XVI. and supplement to CASE X.—“The woman was in labour of her first child; eight months gone, and the child’s arm presented. She was attacked with a flooding; and had been in labour several hours. The membranes were broken, the hemorrhage was a little abated; and the arm pushed down into the vagina. The os internum was open about one inch and a half, or the circumference of half a crown, and felt no thicker at the edge than a piece of thick parchment.

“Having caused her to be laid in a supine position, I by degrees introduced my hand into the vagina; and afterwards my fingers into the os internum. This I endeavoured gently to stretch, by pushing up my fingers in form of a cone; but to my surprise found it so rigid, that it would not dilate in the least.

“I then used greater force, and repeated it several times by using one hand till it was fatigued and cramped, and then the other; but all to no purpose.

“Having failed in all these attempts, and recollecting from the former experience of a few cases, that by such force the os internum had been torn, and the women recovered even when the os internum was much thicker, I thought it advisable to introduce the scissars, and snip the edge of it. This operation being performed, it gave way so as to allow my hand to pass into the uterus. I then turned the child, and delivered it by the feet, which were much mortified, the child having been dead at least a fortnight. The woman seemed in a way of recovery; but complained of pain and soreness. About the fourth day she was taken with violent pains in the head and a quick pulse; but bleeding in the arm relieved her: on the fifth day after venæsection, she was seized on a sudden with a violent looseness, which weakened her much; but it was restrained by anodyne and cordial medicines: the fever recurred, and she was again blooded on the sixth; but the looseness returned on the seventh, which sunk her so that she immediately expired.

* The sequel of this case appears under “*Obstructed Lochia*,” Case II.

" This was the second time that I had snipped the os internum when I could not stretch it, supposing that as it was so thin the dilatation could have no bad effect. Although I did not succeed in Case X. under this head, I attributed the death of the patient in that case to her great weakness from her being exhausted before delivery by the hemorrhage; but I hoped as this woman was stronger, the same method would have succeeded; especially as the child must in this case be brought footling. I say, I had found it tear considerably, and the woman recover; but I afterwards reflected, that as the patient had not flooded much, I ought to have waited longer to allow the pains to push down the shoulders, and dilate the parts more. No doubt the violent force used first to dilate, and then the further dilatation, when I introduced my hand, might bring on the inflammation, pain, and fever, which ended in a looseness.

" It is amongst the most difficult things in midwifery to know in floodings, especially if the child presents wrong, when there are labour pains, how long to delay the delivery: because if we deliver soon, and the woman dies, we are ready to reflect, that it would have been safer to leave it to the labour to stretch the parts; and when we delay too long, and the woman is too much weakened with the flooding, we are apt to think it would have been safer to have delivered sooner.

" We find, in cases where the child presents fair, that the flooding commonly diminishes, or stops, on the breaking of the membranes in labour, and then the head is forced down, and the woman is for the most part safely delivered; but here the wrong position prevents the delivery, and although the violence of the flooding is abated on the waters' coming off, yet as there is a draining, this being long continued, sinks the patient. This fatal case is inserted as another caution to young practitioners."

CASE XVII. and supplement to CASE V.—Mr. Mudge, of Plymouth, was called to a very little woman much deformed. She had been in labour two days: the waters had been discharged seven hours: her pulse was extremely low, and sunk, occasioned by a pretty large flooding.

He found the right arm in the vagina, together with the cord, the pulsation of which assured him of the child's being alive. He, after great fatigue, brought down the legs and body. Then he tried to deliver the head, at first with great caution, to save the child; but the pelvis being so very narrow, that the head was as immovable as a rock, he increased the force, and underwent a greater fatigue than he could describe.

He endeavoured to introduce the crotchet, and fix it on the upper part of the head; but his strength being so much exhausted, and the pelvis so narrow, he could not raise it high enough, but fixed it on the under jaw, and finished the delivery by means of

his utmost force. The labour lasted about twenty-five minutes. The mother was perfectly well in a week.

CASE XVIII. and a supplement to CASE IX.—“The woman had been in labour several hours before the membranes broke. Mrs. Simpson, a midwife, whom I had taught, and kept on purpose to attend all the labours with the pupils in the teaching way, was first called. She had assembled about ten of the gentlemen. Before the membranes broke, they could scarcely feel any part of the child.”

“Being called, I examined, and could feel some part of the child resting above the os pubis; but could not distinguish it to be the head. When the membranes broke, it came a little lower; but as it felt unequal, and not like the round and hard touch of the head, and still kept high, although she had strong pains, I thought it was more advisable not to wait any longer, especially as the woman herself told me, that in her former labour, which was her first, a gentleman was called, and was obliged to bring the child away piece-meal.

“I then had her brought to the foot of the bed, as there was more room than at the sides: two of the pupils supported her legs. I kneeled, and at every pain introduced my right hand in form of a cone, by little and little, into the vagina. I then found it was the face and neck with the chin to the left side of the pelvis: I also perceived the bones projecting inwards, where the lower vertebrae of the loins join the os sacrum, and forming an acute angle, which was the occasion of the head's not coming down lower; but although I found the pelvis narrow, yet the head felt but small; and as it was too high for the forceps, there was a probability of saving the child by turning it, and bringing it footling. The face filled the upper part of the pelvis so exactly that some of the waters were still kept up in the uterus, so that when I pushed up the head, it was with great ease raised to the fundus uteri. By pushing it up quickly, the thick part of my arm filled the os externum and vagina; so that the remaining waters were kept up, till I got the child turned with the breech and legs to the lower part. These I easily delivered, and expected also to have safely extracted the head, as the pelvis was narrow. I brought the chin a little to the left side, introduced two of the fingers of my right hand, into the mouth of the child; and with my left held the body. I began at first to pull with a small force; but as the head did not advance, was obliged to increase it more and more, though to no purpose. I rested and pulled again with all my strength, till the fingers of my right hand began to fail; then I changed hands, but without effect. I rested and changed hands again, and continued to pull till I found the neck and jaw begin to give way. As it was now to no purpose to try any longer, because the child could not be brought alive, I extracted

it with the crotchet in the same manner, as described in the former cases. The fore and middle fingers of my right hand, were so overstrained by the great force of pulling in the mouth, that they swelled at the joints next to the back of my hand for several days, so that I could scarcely move them. Next day, the joints at my elbows and shoulders were swelled also. The woman recovered."

CASE XIX. and supplement to CASE XI.—"The woman had been beaten and kicked on the private parts three weeks before, so as to occasion a large swelling on the labia pudendi. She had not felt the child stir for fourteen or sixteen days. Some of the gentlemen that attended me, had been called two or three times some days before the delivery; but found it was not right labour. She was blooded and a poultice applied to the swelling, which relieved her, so that it was quite gone before she fell in labour. She was weak and low, having eaten or drank little since the time she had received the bruises on her body, which had rendered her incapable of begging about the streets as formerly.

"When I examined, I found the os internum pretty much dilated, the membranes felt very thick. She had been several hours in labour; but as she was weak, the pains did not force them down into the vagina. She was very big. I felt with difficulty the child's head, which lay above, and over the os pubis, and below that a great quantity of waters.

"I waited from ten or eleven, till seven in the evening; but there was not the least alteration in the parts. As the woman was weak, and I suspected that the child was dead, from the head's being kept up so high, occasioned by the belly's being much swelled and expanded, and tumefied with air, which made it specifically lighter than the waters, I resolved to try to deliver her, especially as she had formerly two children, and according to her account the labours were not lingering: but suspecting there might be difficulty, I waited till all the gentlemen that attended me were convened. I had the woman laid supine across the bed, her legs supported by the two eldest pupils. At first I designed to have broken the membranes, that the head might be forced down, when the waters were evacuated, and the uterus contracted; but finding the membranes high up, and rigid, and that the os externum dilated with a small force, I altered my design, and introducing my right hand into the vagina, passed it up through the os internum, into the uterus.

Having broken the membranes, I passed my hand within them, and found the child floating in a large quantity of waters, which were kept up by my arm locking up the os externum. I then felt, and told the gentlemen that the belly of the foetus was largely swelled, and that I was then turning up the head to the fundus, to bring down the breech and legs to the lower part of the uterus, at the same time placing the face and fore parts of the

child towards the back of the mother. When I brought down the feet of the child, the waters contained in the uterus issued out with great force along my arm to the quantity of three or four quarts. I then brought the legs without the os externum, and the scarf-skin stripped all off. After wrapping a cloth round them, I endeavoured to bring along the thighs and breech; but could not move them further. I pulled with greater force, but found the legs were likely to separate from the thighs. I then introduced the fingers of my left hand along the back part of the pelvis, and found the bigness of the belly was the principal obstacle. With my right I introduced the scissars, and pierced it with the points, on which a good deal of rarefied air, and waters, were discharged. After dilating the points to enlarge the opening, I brought them down, and introduced the fingers of my left hand into the aperture; with these I got a firm hold over the os pubis of the fœtus, and within the abdomen. By pulling at this, and with my right hand at the legs, the breech was brought without the os externum; but then I found it was separating at the vertebræ of the loins, from the body of the child. I then rested a minute or two, and introduced the fingers of my left hand up to the breast of the child. With my right I passed up the point of the crotchet, and fixing it there, tore open the breast and ribs; but in pulling at the crotchet with my right, and at the breech with my left, the last was pulled from the upper part of the body. I found on tearing open the breast, that a large quantity of water and blood were evacuated. The hold of the crotchet giving way, I tried to fix it higher; but every part tore so easy, that I could not bring down the body. I then was obliged to take out the crotchet and rest a little, for my hands and arms began to be cramped and enervated. After recovering a little from the fatigue, I introduced my right hand into the uterus, and tracing up to the shoulders, brought down one of the arms.

"I attempted to fix a noose over the wrist, but it was so slippery and the body so high, that I could not get within the os externum. I again introduced my hand, and was for a little while at a loss how to proceed to deliver the body and head to the best advantage, because every part tore so soon where I fixed the crotchet. Without bringing down the body, I tried to push it up and bring in the head: but this last was so large and slippery, that I could not turn it down so as to get the hind; or upper part, to present.

"Being again fatigued by these fruitless endeavours, I was obliged to intermit. I then resolved to fix the crotchet; for which end I introduced my left hand up to the shoulders, and with my right got the point fixed so firm above one of them and the clavicle, that it did not give way, but brought it down into the pelvis, and without the os externum. I pulled slowly and with

caution, lest a separation should happen at the neck, and then it would have been more difficult to deliver the head.

"After I had got the shoulders without the *os externum*, I again rested that my strength should not be too much exhausted. I introduced two of my fingers of the right hand into the child's mouth, which was a little to the left side of the *os sacrum*, and above the brim of the pelvis, and with my left hand, I pulled at the shoulders which were wrapped in a cloth. Finding the head did not move, and that both the under jaw and neck were giving way, I again desisted. I now introduced the fingers of my right hand up to the face and forehead, and with my left passed the crotchet up betwixt them, till I could find the point above the crown of the head. Having brought down my right, I then took hold of the handle of the crotchet with it, and the shoulders with my left. I tried several times if the crotchet had a firm hold, and gradually increased the force of pulling; by which means I brought the head down into the pelvis, and luckily delivered it. The crotchet had fixed near to the crown of the head, and had torn open the skull, from that part through the fontanel to the bones of the forehead. At this large opening, the brain was squeezed out, the head collapsed, and came down with greater ease. I was afterwards obliged, with a good deal of trouble, to separate the placenta which adhered firmly to the fore part of the uterus; but could not effect the separation till I turned her on her left side. One thing was remarkable, and assisted me much, at least it prevented a greater fatigue. Every time I introduced my hand into the uterus, I found it still kept from contracting on the child, by some waters that remained; for although a vast quantity came off at first, yet when I brought down my hand, the parts of the child pressed so close down, that there was still some detained. My greatest fatigue was occasioned by my being obliged so often to pull down and push up my hands; as well as by the slipping of the body and crotchet. If I had taken the first method I designed to follow, the difficulty I believe would have been much the same; for, as the woman was weak, the pains would not have forced the head into the pelvis, even after the membranes were broken, and the bulk of the waters evacuated. Besides, as the head was large, and the hairy scalp swelled, the forceps could not have brought it down. The only advantage would have been, after the head was opened, and extracted with the crotchet, that the shoulders could have been easier torn down with the instrument, than the belly, opened in the same manner; after which there would have been no danger, as in the other way, of leaving the head behind."

"CASE XX. and supplement to CASE XII.—"A woman near her full time, of her second child, was taken with a discharge of blood from the uterus, which continued to drain for eight or ten

days. She was by misfortunes reduced to low circumstances, and had suckled her first child till within three weeks of this labour. It then died, and her grief, joined to the shock of a sudden surprise soon after, was perhaps the occasion of bringing on the flooding.

"When called to her, I found her pulse low and weak, though not frequent. She had no labour pains; but had been attacked with frequent vomitings, which had helped to dilate the os uteri. On examining, I found the head of the child presenting with the membranes and waters; the os uteri soft and pretty much dilated. As she had lost a great quantity of blood, and there was no prospect of right labour pains, I thought it safer for the woman and child, to deliver directly by turning, and bringing by the feet, especially, after she had told me, that she had been delivered easily of the first child. I had little difficulty in introducing my hand into the uterus, and as the membranes had not been broken, I easily pushed up the head, and brought along the legs and body. After I had turned the belly of the child to the mother's back, and a quarter more, I then brought down the legs, body, shoulders, and arms. I now introduced a finger into the mouth, and expected, as she had an easy labour before, to have delivered the head with little difficulty; having tried every safe method, first to bring the forehead into the hollow of the os sacrum, by pulling the body both upwards and downwards, likewise from side to side; then endeavoured to move the face first to one side, then to the other; all my efforts proved ineffectual. I exerted great force, and continued to increase it till I found the neck and mouth begin to give way; I then declared that I could not possibly save the child. I introduced my left hand along the side of the child's head, until my fingers passed the os uteri, along which I introduced a curved crotchet with its point bearing close along the head to the upper part, and moved it backwards to bring the convex part over the forehead. This being done, I fixed the point into the upper part above the forehead; then pulled slowly to find if it had a sufficient hold. When I was certain of this, I pulled with greater force, and found the bones of the skull collapsing, and a quantity of waters come along: the forehead came easily down into the hollow of the os sacrum, and was delivered immediately without tearing the parts of the woman. The uterus contracted so strongly, that the placenta, with very little pulling at the funis, was pushed down into the vagina, and easily delivered. The flooding ceased immediately, and the woman bore the operation better than I expected.

"The child's head was about a third larger than common, and it was remarkable that the fontanel and sutures were no otherwise than in a sound head, the first no larger, and all the bones were close to one another. In general when the head is dropical, the

bones are stretched from one another more or less, according to the quantity contained. Dr. Brishan examined the head next day, and poured through a funnel no less than a quart or three pints of water at the opening, which had been made with the crotchet into the head. The whole cerebrum and cerebellum were found. The point of the crotchet was fixed at the side of the fontanel, which it had perforated. This aperture allowed the waters to discharge; the head to lessen, and come along. The woman seemed to be in a good way for several days, during which the doctor attended her, and prescribed some medicines to help her to rest, and sweat; but she being mismanaged and neglected by her nurse, was thrown into a fever, and died about the eighteenth or twentieth day."

CASE XXI. and a Supplement to CASE XII.—A correspondent of Dr. Smellie was called to a woman who had been in a lingering labour three or four days. Although she had now and then fainting fits, yet her pulse was regular and strong: the head presented fair, but very high; which made him resolve to turn the child, and bring it by the feet: this required great force; and after the body and arms were delivered, he was obliged at last to exert great force in extracting the head with the crotchet. He says, he abundantly repented the attempting to turn and deliver footling, and wished he had waited longer, as the woman did not seem to be in such danger as to require an immediate delivery. He reflected, that by waiting perhaps he might have succeeded with the forceps, and if they had failed, and the woman been in danger, it would have been safer for her, especially as the child was large, and the pelvis narrow, to have diminished the bulk of the head, rather than run the risk of her life, by so great force being used; for although she did recover, it was with great difficulty, and what he did not expect.

CASE XXII.—This is a case much of the same kind: the child being delivered in the same manner as the foregoing, and related by the same gentleman. The woman had been in labour all the day before, and the waters had come off several hours before he was called. The head rested over the os pubis; and the pains were almost entirely gone off. Having laid her on her side, and raised her hips higher than her shoulders, he easily introduced his hand into the uterus, and brought down the legs and body of the child; but after many repeated trials, and exerting great force, he could not deliver the head. Thus foiled, he was obliged to introduce the crotchet, which he fixed on the left parietal bone, near the sagittal suture; and at last, not without some difficulty, delivered the head. The child was very large, and the pelvis narrow, from the projection of the upper part of the sacrum, and the make of the bones at the symphysis of the os pubis. The

placenta adhered to the fore part of the uterus. The woman recovered very well.

He anticipates Dr. Smellie's censure of him for conducting the operation after this manner, when he knew what sort of pelvis he had to deal with; as he could not tell but that the head was not only large, but also too much ossified, to yield to the passage. He was in hopes, however, by the cautions which he used, to deliver without the application of the crotchet, especially as he found he could turn the child with so great ease.

CASE XXIII.—This is a third case from the same gentleman, of the like nature; the child being delivered also with the crotchet. He was sent for to a woman about midnight. The midwife acquainted him, that after the waters broke, though the pains were strong and forcing, the head did not advance, but rested on the os pubis; that she often endeavoured to disengage it, but to no purpose; she therefore tried to turn it, but failed in the attempt, and had brought down a hand, which, with the head, was firmly locked in the passage. Upon examination he found the child situated as above, and the pelvis very narrow, from the jutting in of the last lumbar vertebra, and the upper part of the sacrum.

Having properly placed her, he endeavoured to raise the head, but could not make it yield in the least: then he attempted to slip his hand on one side, for, though it was closely jammed between the os pubis and sacrum, there was room on each side of the pelvis, but neither could he succeed in this endeavour. He now caused the patient to be turned on her knees and elbows; and with much difficulty introduced his hand; but was several times obliged to withdraw it for ease, the great pressure cramping him so as to render him incapable of reaching the feet. In this situation he hardly knew how to act. The head was not only very high up, but did not present fair enough for the crotchet; and the contraction was so strong, he almost despaired of bringing down the feet. However, as he thought this the most probable way of relieving the patient, he once more attempted it, and after much difficulty so far succeeded as to bring down one foot, and fix the noose on it. He then brought down the other, and joining them together, extracted as far as to the chest, and reached the left arm; the right being engaged with the head gave him some trouble, and he snapped the humerus in extracting it; but this gave him less concern, as there was no pulsation in the funis. The arms being down, a principal difficulty (the head) still remained. He introduced a finger into the mouth, and had very nearly dislocated the neck; it was so fast locked that he could gain no ground. He therefore insinuated a crotchet, by which he delivered it, in a short time.

He left the poor woman without any hopes of her recovery. She indeed recruited a little about six or eight hours after, but died that day or the following.

The 21st and 22d cases were both badly conducted, and inserted by Dr. Smellie as a caution to others to wait with more patience.

CASE XXIV.—A practitioner of Sankey, in Lancashire, was sent for to Ashton, near Wigan, to Ann Marsh, called the little dwarf, about one yard nine inches in height, aged thirty-nine years. "The midwife told me," says he, "that she had been four days in labour of her first child, that the leg had been without the birth twelve hours, and the patient had now no pains. I found the heel towards the pubis, and the scrotum hanging out much swelled.

"After using a great deal of force, I raised the body of the child, which gave me more room to introduce my finger betwixt the thigh that was still up and the body. I at last, by taking time, and using all my strength, got the body delivered as far as the shoulders.

"Perceiving the cartilages of the sternum driven inwards by the jetting forward of the vertebræ of the mother's loins, I brought down the arms. I made an incision with the scissors, at the back part of the child's neck, to introduce the curved crotchet within the foramen magnum; but to no purpose: after this, I made another opening on the right side of the neck, separating the skin with my finger higher up than the ear, which formed a safe support to receive the point of the crotchet, and defend the mother from being injured.

"Introducing the crotchet, I tore open the skull, and as the head lessened I delivered it, and the woman recovered."

Cases in which the Head was left either in the Vagina or Uterus, and where the Body was delivered.

CASE I.—"A midwife, who had never had any education, and who had formerly vaunted, that she always did her own work, and would never call in man to her assistance, was called to a case, in which the child presented wrong. After she had, with great difficulty, brought down the body, she could not deliver the head, from the woman's being of a small size, and the child large. During the time of her making these trials, the husband sent in great haste for me. In the mean time, when the midwife found that her endeavours were in vain, she rested to recover from her fatigue, and told those who were present, that she would now wait for the assistance of the woman's pains. One of the servants seeing me at a distance, went in in a hurry, and told her I was come. She not knowing that I was called, fell to work immediately, and pulled at the child with great force, and

violence. Finding, as she imagined, the child coming along, she called out that now she had got the better of him. The neck at that instant separating, the body was pulled from the head, and she fell down on the floor. As she attempted to rise, one of the assistants told her that it wanted the head; a circumstance that shocked her so much (being a woman of a violent disposition), that she was immediately seized with faintings and convulsions, and obliged to be put to bed in another room. I just then arrived, and was surprised to find the house in such confusion.

"After being informed of what had happened, I found that the woman's pulse was pretty good, and that there had been no discharge of blood from the uterus, but what came now was only from the child's head, which, to my great joy, I found lying in the vagina and pelvis. I let her lie a little, to recover of the former fatigue; then examining more particularly, I found part of the skin of the neck without the os externum. After I had put her in a supine position, I introduced the fingers of my left hand, and found the mouth at the right side, and lower part of the sacrum. Introducing two of my fingers into it, I tried with that hold to bring along the head; but finding that this would not be sufficient, and being afraid that the under jaw would separate, if I used greater force, I pushed up my fingers farther, and along the face, and with my right hand introduced the crotchet to the upper part of the forehead. Here I fixed it, and again taking the former hold in the mouth with my fingers, by pulling with them and the crotchet, I delivered the head much easier than I expected. After having extracted the placenta, and put the woman into an easier position in bed, I went and recovered the midwife, by giving her some volatile spirits in water. The child appeared to have been dead several days; and I was persuaded, that if the neck had not given way, but had stood another pull, the head had been delivered.

"This accident was lucky for me, and rendered the midwife more tractable for the future."

CASE II.—"The breech of the child presented, with the thighs to the pubis, and the body was forced down with the labour pains; but the midwife not knowing how to turn the fore parts of the child to the back parts of the uterus, brought it along as it presented. The child being pretty large, she used a good deal of force to deliver the head, which not being sufficient, she fixed a cloth over the shoulders, and got one of the bystanders to assist her, by pulling with greater force; by which the body was separated from the head. In consequence of this accident, I was immediately called. I found the greatest part of the head still above the pelvis. The midwife told me, she was in hopes that the woman's pains would have delivered it before I came; but that now they had quite left her, and that a flooding was begun. The

woman's pulse was a little sunk. I examined the body, and found that the child had been dead at least ten or twelve days; the scarf-skin was livid, and some of it stripped off; and the woman had not felt it move or stir during that time. After encouraging her, and giving her some warm wine and water, and putting her in a supine position, I introduced my right hand into the vagina, and raised the head above the brim of the pelvis; then turned it, and brought in the upper part of it to present, with the face backwards, and a little to the left side. This being effected, I ordered an assistant to press on the belly with both hands, to keep down the uterus and head in that position; then opening the head with the scissors, I went up along the forehead and face, introduced the blunt hook with my other hand, and fixed the point in the mouth, which was now turned towards the fundus. I now withdrew my right hand, took hold of the handle of the blunt crotchet or hook, and introduced the fingers of my left hand into the opening. With these two holds I gradually brought down the head, and delivered it slowly, though with some difficulty. The placenta, which was partly separated, followed soon after. The head, in this operation, slipped several times before I got it right turned, to present with the upper part. I also had some difficulty in keeping the head steady, so as to perforate the same with the scissors, by which both my hands were pretty much cramped and wearied."

CASE III. This was a case of the same kind as the former, but more difficult, from the parts being much swelled, and the pelvis a little distorted.

"The head was separated much in the same manner as in the foregoing case, but the face was to the right side. The head was kept high up, from the pelvis being narrow, and the body was easier separated, from being much mortified. I was not sent for to this woman, till about twenty-four hours after the separation, the midwife assuring them that the pains would be sufficient to deliver the head; but the woman growing weaker, and there being a small discharge of blood, which now began to increase, I was sent for.

"As the external parts were pretty much swelled, I with difficulty introduced my hand into the vagina, and pushing up the head, turned down the upper part, as in the former case; but the task was rendered much harder, from the narrowness of the pelvis, and the placenta's lying loose at the back part of the uterus; this I was obliged to bring down before I could place the head in the right position. After I had opened the head, I could not fix the blunt hook, as in the former case; but got a pretty firm hold at the fore-part of the ear; and luckily the head not being very large, I brought it gradually lower, as the cerebrum evacuated, and at last delivered it. The point of the crotchet

slipped twice in pulling; but the third time I got a good hold in the outward corner of the left orbit of the eye."

CASE IV.—"The arm of the fœtus presented. The midwife sent for a gentleman in the neighbourhood, who practised midwifery. He was so fatigued by the time that he got the child turned, and the body delivered, that he was not able to extract the head. In this situation he called a medical gentleman, who tried several times to deliver the head, but to no purpose. He afterwards endeavoured to introduce the curved crotchet, and to fix it on the upper part of the child's head, but was prevented by the narrowness of the pelvis, which cramped and fatigued his hand so, that he was not able to fix it. After the other gentleman and he had tried this last method several times, and found the head lie so very high, that the shoulders prevented their going up sufficiently with their hands to guide the instrument, they at last resolved to separate the body from the head; an operation which one of the gentlemen performed with an incision knife, at the lower part of the neck, betwixt the sixth and seventh vertebra. Again they attempted to fix the crotchet; when this did not succeed, they tried to push up the head, so as to turn down the vertex, and open it with the scissors, and then to extract with the crotchet, as in the former cases; but being both again fatigued, they were obliged to desist, and sent for me; and in the mean time desired the woman might be kept quiet in bed.

"After having placed her in a supine position, I introduced my left hand into the vagina, then raised the head, so as to gain admission into the uterus. In doing this, I found that the difficulty in the head's coming along proceeded from the pelvis being distorted; and that the upper part of the os sacrum, and last vertebra of the loins jetted considerably forwards.

"Having found the mouth, I introduced a finger into it, and bringing it downwards, turned the forehead to the right side, at the brim of the pelvis; then tracing up with my fingers along the face and forehead of the child, while an assistant pressed gently with both hands on the abdomen of the woman, I tried to introduce one of the curved crotchets; but finding that the pubis prevented me from insinuating it far enough up in this position, I turned her to her left side, and again introduced my left hand in the same manner. Betwixt this and the child's head, I slipped up the crotchet with my right hand, having the head grasped in the uterus with my left, my fore and middle fingers being placed on the right parietal bone, near the vertex. I fixed the point of my crotchet into this part, and after I found that I had torn open the skull, and that the crotchet had a firm hold, I withdrew my hand. Fixing again my fore and middle fingers into the mouth, and my thumb below the chin, I began to pull with both hands, viz. at the under jaw with my left, and at the

crotchet with my right ; but finding that it required a good deal of force, I pulled at first in a slow and cautious manner, that as the crotchet tore open the bones, I might allow time for the brain to evacuate, and the head to diminish in its bulk. I exerted the greatest force at the crotchet, and only a little at the under jaw, for fear of tearing it off, and losing that hold, which is of great advantage to keep the head steady. By increasing the force at intervals, the head began to advance lower and lower. When I had brought it down into the pelvis, I directed the assistants to lay the patient in the supine position ; then I turned the forehead from the right ischium backwards to the concave, and lower part of the sacrum ; and standing up, pulled the head upwards, in a semicircular manner, from below the pubis. One lucky circumstance attended this case ; the woman had no flooding during the whole time, and endured all these efforts with great resolution. Finding that the placenta did not in a little time come down, I introduced my hand into the uterus, and found the part where the head was lodged still pretty open. At the upper part of it I perceived the middle of the uterus, contracted in form of an hour-glass, below the placenta, which adhered to the fundus. I insinuated the fingers of my right hand gradually into this contracted part, while at the same time I pressed my left hand on the abdomen, to keep down the uterus. After it was fully stretched, so as to allow my hand to pass, I gradually separated and extracted the placenta, which was adhering firmly to the uterus.

“ When we examined the head, we found the crotchet had fixed on the right bregma ; and had made an opening about two inches long, down towards the temple. In operating, I tried to fix it nearer the vertex, on the sagittal suture, but the head being slippery, and difficult to keep in a firm position, I was glad to fix it in that part. Indeed I imagined it was fixed higher, and the opening much larger, till the head was examined.

“ The woman, although she was much exhausted by undergoing the fatigue of these several trials, yet in the end recovered much sooner and better than expectation.

“ When I was called (as such cases happen but very seldom), I carried along with me a pair of the long forceps, bent to one side, Ammand's net, Leveret's tire-tête, and a pair of curved crotchets : but finding the difficulty proceeded from a narrow pelvis, and that the head must first be opened, and lessened in bulk, before it could pass, the curved crotchet seemed the most simple and effectual instrument. If this had failed, then it might have been proper to turn down, and open the vertex with the scissars, and extract the head with the crotchet. The curved kind seem better adapted for this purpose, than either the straight kind or blunt hook, to be used either with or without the sheath. Dr. Hunter was present, and assisted at this operation.

"This should be a caution to practitioners, never to separate the body from the head, but if possible to deliver without using that expedient; and to wait with patience (when the child cannot be saved) the efforts of the pains, especially if the woman is not in absolute danger; for the head is much easier delivered with the crotchet, when not separated from the body."

CASE V.—A country practitioner was called by a midwife, to a woman of a delicate and tender constitution. She had been a whole day in strong labour before the membranes broke; the pains after that abated, and in two days the head did not advance.

He found the os uteri fully open, and the forehead of the child towards the pubis. With great difficulty he turned the child, and brought down the legs and body; but in using all his force to deliver the head, both the jaw and neck gave way. Being much fatigued, and the uterus strongly contracted, he could not introduce his fingers to the head, so as to fix the crotchet. Having sent for Dr. Smellie's correspondent (who relates the case), he, after repeated trials, at last got his fingers into the orbit, where he fixed the crotchet, and delivered the head, which was large. The futures were firm, and the pelvis was narrow. The patient seemed to be in a fair way of recovery for the next two days; but imprudently sitting up too long, and drinking heating liquors, she was attacked with a fever, and died the sixth day after delivery, without any complaint from the severity of the labour.

CASE VI.—A surgeon of Blandford was called to a case, in which the midwife had pulled the body of the child from the head, which was left in the uterus. This he immediately delivered, by fixing the curved crotchet on the head, and his fingers in the child's mouth.

In Gifford's cases of midwifery, Case 69th describes the head of a foetus, six months old, left in the uterus, and delivered with the hand.

Monf. Lamotte (book iii. chap. 23.) has a case of the head's being left in the uterus, the body having been delivered, and torn from the head with great force. And in the last case of the supplement to his treatise, there is a case, in which another gentleman could not deliver the head, which was separated from the body, and left in the uterus. Nevertheless he went to bed, and the first news he heard in the morning was, that the head was delivered by the mere assistance of nature.

Dr. Smellie knew of a case, in which two gentlemen were fatigued a whole day in delivering a head, which was so slippery, that for a long time they were not able to open, or fix an instrument upon it. If they had had the instruments mentioned in Case IV. the operation would probably have been more easily performed.

WE shall conclude Dr. Smellie's valuable series of cases of preternatural labour by observing, that the practice, in arm-presentations, of twisting off the limb, is adopted by some of the most eminent accoucheurs in London. Testimonies in favour of it are given by Dr. Sims, and Dr. Clark of Dublin, in the Medical and Physical Journal.

On the subject of delivery in certain difficult cases of arm-presentation, Dr. Sims says :

" It has been considered as a general rule in the practice of Midwifery, that when the arm presents, except the head is at the same time descending into the pelvis, the child must be turned and brought by the feet ; and for a long time it was supposed that a full-grown child, in such a situation, could never, by any effect of the labour pains, be expelled ; but Dr. Denman first observed that there were exceptions to this, and that a child presenting with the arm, might, by the long-continued action of the uterus, be so turned about, that the breech should come down, and thus the delivery be completed without assistance from art. There is no doubt but that this spontaneous evolution has sometimes really taken place ; experience has, however, shewn, that it is by no means to be depended upon, and the rule of the necessity of turning a child presenting with the arm is generally acted upon, and I believe with great propriety, in those cases where the practitioner is in attendance sufficiently early after the membranes have been ruptured, to allow of the operation of turning being performed with tolerable ease. But it sometimes happens that from neglect in the beginning*, the child is suffered to remain in this unfavourable position so long after the discharge of the liquor amnii, that the uterus contracts so strongly round the body of the child, that the operation of turning becomes extremely difficult and cannot be performed without using so much force as will not unfrequently prove even fatal to the mother. Every experienced practitioner knows that there are cases of this kind, in which the difficulty of turning is extreme ; and although long-continued efforts, dexterously applied, will generally in the end succeed, yet the event is so often unfavourable, that these forcible deliveries are always to be dreaded ; and the more experience a man has, the more he wishes to avoid the necessity of turning under these circumstances.

" It will be remembered that I am speaking only of such cases where this operation cannot be performed without great violence,

* It must be confessed, that although neglect in the beginning is the most usual cause of these difficult labours, it will sometimes happen, that from the rupture of the membranes before the commencement of labour, the ensuing difficulty must be in great measure unavoidable.

for it sometimes happens, even when the waters have been very long discharged, that the uterus acts with so little force that the turning may be effected with tolerable ease and great safety to the patient.

"In the cases I am speaking of, the previous death of the child is for the most part certain, from the concomitant circumstances; the practitioner has, therefore, nothing to consider, but how he can bring it away with the least pain and hazard to the mother. Many years ago, in a conversation with several experienced practitioners on this difficulty, I remember to have heard Dr. Garthshore recommend the severing the head from the body of the child, which he represented as having easily performed with the assistance of the blunt-hook only; an operation mentioned by Heister, as newly invented in his time by one Horne, and long before by Celsus*. Dr. Denman, in his excellent Introduction to the Practice of Midwifery, speaks of this mode of delivery; but not having had any experience of it himself, passes it over slightly. Soon after the above-mentioned conversation, I was called to a woman who had been several days in labour with an arm-presentation. She had been from the first attended by a gentleman advanced in life, but of little experience in this branch of his profession, having spent most of his time as a surgeon in the navy. Having been a pupil of Dr. William Hunter, he had imbibed a notion that nature, if unmolested, was in every case adequate to the delivery of the child; he had not of course, as he assured me, attempted to give any manual assistance. This case was therefore favourable for the spontaneous evolution to have taken place, but unfortunately nothing of the kind happened.

"When my assistance was demanded, I found the woman apparently dying, the arm and shoulder of the child entirely without the os externum, and the uterus so closely contracted round its body, that having no hopes of saving the life of the mother, any attempt at turning was entirely out of the question; yet being desirous of finishing the delivery, for the sake of the women

* *Heister, cap. 153. sec. 9.* "Si vero transversus est, neque dirigi potuit, uncus alio injiciendus paulatimq; attrahendus est. Sub quo ferè cervix replicatur retroque caput ad reliquum corpus spectat. Remedio cervicis practica ut separatim utraq; pars auferatur. Id uncus fit qui, priori similis, in inferiori tantum parte per totam aciem exacuitur. Tum id agendum est, ut ante caput, deinde reliqua pars auferatur: quia scilicet majore parte extracta caput in vacuum vulvam prolabitur extrahique sine summo periculo non potest." *Celsus, lib. 7. c. 29.*

This direction to take away the head first and afterwards the rest of the body, is hardly practicable, and from what I have seen appears to be unnecessary; the difficulty and danger of delivering the head, always indeed proportionable to the deformity of the bones of the pelvis, being greater in imagination than in reality.

in attendance and the relatives of the patient, who are greatly more shocked at a woman's dying undelivered, than under any other circumstances, I thought it a good occasion to put in practice the operation recommended by Dr. Garthshore, and accordingly passed a blunt-hook round the neck of the child, which was so low down as to be easily got at, and pulled forcibly, twisting at the same time with a view of separating the head from the body; but although the child was very putrid, the neck resisted a very considerable force, sufficient to extract the child double, as it was coming down, the head and thorax passing at the same time. Since this I have often been consulted in cases of arm-presentation, where the waters had been long discharged, and the uterus in consequence very closely contracted round the body of the child; in some of these cases, long-continued efforts have at length succeeded in turning the child, but too frequently the event has been fatal, sometimes the uterus has been ruptured in the operation, and sometimes where this misfortune has not been known to have happened, the uterus has suffered so much that fever and death have ensued. The more experience I have had, the more I have been desirous of rather bringing away the child in any way I could, than running the risk of these very difficult turnings. Sometimes I have been able to get at the head, and with the perforator and crotchet have accomplished the delivery; sometimes calling to mind the spontaneous evolution of Dr. Denman, I have succeeded in imitating it by fixing the crotchet in the anus or groin, and now and then pulling by the arm, to get the thorax as low down as possible; I have perforated this, and getting away piece-meal whatever part presented, have divided the body in two parts; in this way awkwardly imitating Dr. Garthshore's operation, or passing the crotchet through the thorax and abdomen, have fixed it in the bones of the pelvis, and thus brought the breech down.

"Having been lately called, in consultation with my friend and colleague, Dr. Squire, in a case where the arm and navel-string presented, and the labour, under the management of a midwife, having been suffered to go on some days after the evacuation of the liquor amnii, the uterus was so firmly contracted round the body of the child, that turning could not but with the greatest difficulty have been accomplished. The doctor having precisely the same ideas of the danger of turning in this case from the resistance the uterus gave to his first attempts, and the same experience of the greater safety of delivering by other means, we determined if possible to save the patient the danger of this operation; and having with some difficulty got at the neck of the child, we fixed a crotchet upon it, and guarding the point with the fingers on the opposite side of the neck, succeeded by degrees in separating the head; then taking hold of the arm, the body passed

with the greatest ease, leaving the head behind, but so low down in the pelvis, that it was easily extracted by a finger in the mouth, and thumb under the chin, without the use of any instrument, or the assistance of a labour pain. The child was not large, or the difficulty of separating the vertebræ of the neck by means of the crotchet, would have been greater; it may, however, I apprehend, always be accomplished with this instrument much easier than with the common blunt-hook; but if filed to an edge on the inner side of the bend, this might perhaps be a very convenient instrument for such a purpose, and appears to be the very same as that recommended by Celsus.

"As I do not know that any case has been published in which the practice of Horne, as recommended by Heister, and since recommended by Dr. Garthshore, has been had recourse to, and the event being fully answerable to our expectations, I presume it will be thought worthy of attention.

"In the above account I have purposely spoken of the uterus as being strongly contracted round the body of the child, without adverting to the nature of that contraction, as arising from the natural elasticity of the uterus, or from its increased action in expulsive efforts or labour pains; because, whatever be the kind of contraction, the nature of the difficulty is the same, varying only in degree. It may not be amiss, however, to repeat here, what has been properly laid down by Dr. Denman, that whenever there are strong labour pains present, turning ought not to be attempted, and that not only on account of the increased difficulty and danger of the operation, but because whenever there are strong forcing pains present, a favourable issue may under all circumstances be expected; for, as if Nature felt her own inability to accomplish the delivery in cross-presentations, there are rarely any pains; and where these exist to a certain degree, I have always found that from the small size of the child, or, which amounts to the same, the large dimensions of the pelvis, the child was about to be expelled double, or that the head or breech were coming down with the arm, though not yet within reach of the finger. Often, however, when there are no pains, whilst the patient is left to herself, the uterus is immediately thrown into strong action by the irritation which the attempt to introduce the hand must necessarily occasion; and this circumstance always adds to the difficulty and danger of the operation. It seems probable that opium, so frequently recommended to be given before the operation is commenced, may in this case be useful; I have not, however, been able to decide whether it is really so or not. Opium seems to me to increase the action of the uterus as exerted in labour pains, although its irregular spasmodic action, producing pains resembling those of labour, is certainly diminished by it. But notwithstanding this irritability of the uterus, by proceeding with

caution in the manner recommended by Dr. Denman, carefully avoiding all exertion of force during the action of the womb, the delivery may for the most part be safely accomplished, though with great trouble to the operator; for by repeatedly exciting the action of the uterus, its contracting powers become more and more languid, and at length frequently cease entirely, when the delivery may be accomplished with tolerable ease and safety. If, on the other hand, a strong man is determined, without regard to the resistance, to overcome every obstacle, he may succeed in his purpose, and that perhaps in a little time, but the event will be too frequently fatal."

In a letter to Dr. Sims, Dr. Clark says, "Much experience, in difficult cases, such as you describe, had taught me to dread the operation of turning the fœtus in utero. Where the death of the fœtus is certain, either by the putrid state of the integuments of the presenting arm, or by a prolapsed umbilical chord, I have been accustomed, some years past, to instruct my pupils to attempt the operation of Embryotomy with Smellie's large perforating scissors and crotchet, and to endeavour to get away the fœtus piece-meal, in any manner which appeared to them least distressing to the patient."

"In July, 1800, I was called on to deliberate with a surgeon of eminence in this city, in a case where the liquor amnii had been some days evacuated before any examination per vaginam was made; the arm and shoulder of a full-grown putrid fœtus were impacted into the brim of the pelvis. Before I saw this patient, the gentleman in attendance had in vain attempted to turn the fœtus. The resistance to every reasonable exertion appeared to him then, and to me, afterwards, insurmountable. Under these circumstances, I did not hesitate to propose that the presenting arm should be twisted off, and the thorax perforated freely, with the view of diminishing the bulk of the presenting part, and of promoting putrefaction. After these measures were put in practice, we agreed to wait the result of labour pains, which had hitherto been irregular and trivial. At the end of thirty-six hours the fœtus was expelled double. The patient's recovery was speedy, and in every respect favourable."

"The result of this single case had determined me to make further trials of this practice, under similar circumstances; and the perusal of your observations, leaves no room for doubting (in my mind) of the propriety of adopting it generally."

CHAP. IV. OF THE MANAGEMENT IN CASES OF PLURALITY OF CHILDREN.

THE case of twins often occurs: of triplets seldom: of quadruplets rarely: nor is there perhaps a single instance where five

or more distinct fœtuses have been found contained in the human uterus, though many such fabulous histories have been recorded by credulous authors.

The signs of two or more children, such as the sudden or extraordinary increase of the uterine tumor, motion felt in different parts of the abdomen, &c. are very doubtful and fallacious: this can only be ascertained after the delivery of one child; and even then a recurrence or continuance of labour pains is not a certain and infallible criterion; neither is the absence of pains a sure indication of the contrary; as many cases have occurred, where several days have intervened between the birth of a first and second child. The chief symptoms to be depended on are, 1st, The child being of a small size, and the quantity of liquor amnii so inconsiderable as not to account for the bulk of the woman in time of pregnancy. 2dly, The bleeding of the funis umbilicalis next the mother. 3dly, The remora of the placenta. 4thly, The uterine tumor not sensibly diminished, which, very soon after delivery, in ordinary births, will be found gradually shifting lower and lower, and will feel at last as a hard circumscribed tumor like a ball between the umbilicus and pubes. Hence the utility of the general practice of applying the hand externally on the abdomen, in every case after delivery; by which an accurate knowledge will be formed of the nature and manner of the uterine contraction. When, from any of these circumstances, there is reason to suspect another child, the most certain and infallible manner of discovering it is, the passing of a finger, or the introduction of the hand into the uterus, where another set of membranes will be perceived, and probably some part of the child presenting through them.

The position of twins or triplets is commonly that which is most commodious, and which will occupy the least room in utero: their situation is often diagonal; though they may present in every possible posture. Thus, therefore, the general rules recommended for the delivery of one child, are equally applicable in the case of twins, triplets, &c.

It has been the general practice with many, after the birth of one child, to pass the hand immediately into the uterus, to break the membranes, catch hold of the feet of the child, and thus deliver. But this is certainly bad practice, whatever authors have said to the contrary. If the woman is healthy, and the child presents favourably, that is, with the head, breech, or feet, natural pains ought to be waited for, when the child will be expelled by the force of these only; failing which, manual assistance, as in other cases, must be had recourse to.

It very rarely happens, when the first birth is preternatural, that the second membranes are ruptured in making the extraction. Should this prove the case, the limbs of the children may be confounded, so that a leg and an arm, or three legs, or arms of different

children, may present; which, however, will make little difference in the mode of delivery; the accoucheur will endeavour to lay hold of the foot or feet most readily within his reach, and will be cautious, in bringing them down, to make sure they belong to the same body.

If the child presents cross; if floodings, convulsions, or other dangerous symptoms, shall take place; if the woman has suffered much in the first labour; and if, after several hours, a recurrence of labour pains does not ensue; the hand must then be introduced into the uterus, the membranes must be broken, and the child must be extracted by the feet; or, if the head remains locked in the pelvis, and, from want of strength in the woman, cannot be expelled, the treatment is the same as in other laborious births.

In twin-cases it may be recommended as a general rule, to avoid precipitating the delivery of the second child till the woman shall have rested a proper time, and till, by the contraction of the fundus uteri, the second set of membranes occupy the place of the first, and be protruded as far as the os externum; when, and not before, the delivery may safely be assisted, should circumstances occur to render such assistance necessary: whereas, by breaking the membranes and evacuating the waters when the child lies high in the uterus, a flooding may be brought on, or a spasmodic constriction of the uterus round the body of the child may be occasioned, which may render the delivery both difficult and dangerous.

The placenta of twins, triplets, &c. generally adhere, though sometimes they are distinct, and may be thrown off at different times after the birth of the different children; so that the practitioner should be on his guard, and never should leave his patient till he makes sure there be no more children. When a second child is discovered, no attempts ought to be made to extract the placenta till after the birth of the remaining child or children; as the woman would be subject to flooding, which might prove of fatal consequence before the uterus could be emptied of its contents.

In case of plurality of children, a second ligature should be applied on the funis, on that end next the mother, immediately after the birth of every child; and a gentle compression should be made on the abdomen of the woman after the first delivery, which must be gradually tightened after every succeeding one, to prevent the consequences of a sudden removal of uterine pressure, which is to be dreaded where the distension has been considerable.

The placenta, in such cases, must be managed in much the same manner as usual. In twins, &c. it generally separates with great facility, provided time has been given for the uterus to contract. Both chords should be gently pulled; and when it advances towards the uterine orifice, where, being large and bulky, it commonly meets with considerable resistance, it requires the introduction of a finger or two into the vagina for bringing down the edge, after which the body readily follows.

CASES.

The following cases of two or more children, delivered at one birth, are recorded by Dr. Smellie.

CASE I.—"I was bespoken," says he, "to attend a patient, who was of a delicate and tender constitution, and had suffered much in a former labour. I was called to her in the evening, and found the os uteri but very little open. The head of the child presented; but the pains were weak and seldom. Expecting that it would be tedious and lingering, as the former, I sent for my midwife, to attend her, who was to call me when she found the woman near delivery. I was summoned in about two hours, and found the os uteri largely open, and the membranes pushed down without the os externum, which had an uncommon feel. When I introduced my finger into the vagina, I felt these membranes and waters as coming down at the side of the head. As the mouth of the womb was largely opened, and these membranes, with only a small quantity of waters, were hanging loose without the external parts, I pulled them away; but touching in the next pain, I found another set of membranes, and waters, still before the head. I also felt through them, that the fontanel presented; and by the futures, that the forehead was to the left side, and the vertex to the right. Being afraid that this position would occasion a tedious labour, I pushed up the forehead, that the vertex might advance; in doing which, the membranes broke, and the head immediately was forced down to the lower part of the pelvis. In two or three pains more, although the fontanel still presented in the middle, yet the child being small, the face and forehead turned backwards to the concave part of the sacrum, and the vertex turned out below the pubis, and was soon delivered. After I had tied, and cut the funis, and given the child to an assistant, I examined, to find if the placenta was coming down; but instead of that, the head of another child presented; and as I felt no waters or membranes before it, concluded that those were its membranes which came first down. The vertex presenting; the patient having fresh pains, and not weakened by the former labour; the membranes being broken, and the waters gone, it would have been imprudent here to turn the child, and bring it footling, as I commonly used to do in other cases, where the membranes were not broken. On this occasion, I did not mention that there was a second child, lest the woman should have been uneasy; but said, that I commonly waited to see if the placenta would come down slowly with the after pains; and the second child being delivered soon after, gave great joy to the mother, as well as to the assistants. The two placentas came likewise down gradually in one cake."

CASE II.—"When called to this case, I was informed by the midwife, that she had delivered the woman safely of the first child, which came in the natural way, about six hours before. She said

there was a second child, which lay at first so high, that she could not distinguish whether it came right or wrong, till the woman had fresh pains, which increased, and grew stronger in about three or four hours after the first child was delivered. These forced down, and broke the membranes; although the pains had been frequent and strong, and the head pretty low down, it was still somehow retarded.

"I examined, and found that the right ear presented; that the face was towards the left side of the pelvis; and that the right bregma rested on the pubis. During the next pain, I introduced my hand into the vagina, and pushed up the head at the left side. As the pain continued, and increased, I withdrew my hand, and the vertex was immediately pushed down to the lower part of the right ischium. Being then called to another patient, I left the woman to the care of the midwife, expecting she would soon be delivered with the labour pains. In about two hours I was again called, and found the head much in the same situation as when I left her, viz. the forehead to the upper part of the left ischium, the occiput to the under part of the right, and the left ear at the pubis. The midwife told me, that she had several strong pains after I went away, but that now they were grown weaker. She also said, that there was a pretty large shew at times, and seemed apprehensive of a flooding coming on. I then caused her to be placed in a side position, and delivered the child with the forceps.

"I found at first the delivery was retarded by the wrong position of the head; when that was remedied, another difficulty proceeded from the uterus being contracted before the shoulders, and the funis surrounding the neck three times; which last I disentangled, by slipping it over the head, after it was delivered. This second child, contrary to most cases of twins that I have attended, was much larger than the first.

"The placentas formed one cake. A case of the same kind succeeded in the same manner with a practitioner of Bath."

CASE III.—"I was bespoken, and called to a gentlewoman in labour, who had been very weak and low for many months, and much emaciated, from a spina ventosa in her knee; so that every body was surprised at her being with child. She was delivered in a few pains after I arrived. While I was employed in tying and dividing the funis, she told me, that the motion of the child had been different for the last fourteen days, from what it had been before; that in the last fortnight she had felt it low down, and on the right side; whereas, before that time she had perceived it stir higher up, and at both sides. After delivery, she laid her hand upon the abdomen, and called out that it was still very big. I then examined for the placenta, and found the membranes, waters, and head of another child presenting. Without saying any thing of the matter, I slipped my hand up into the uterus, broke the membranes,

and after getting my hand within them, turned the child, and delivered it by the feet. By its being very livid, and the scarf-skin easily stripping off, it appeared to have been dead for the space of a fortnight. The placentas formed two distinct cakes."

CASE IV.—"A woman who had borne children before, and was come near to her full time, fell in labour about fourteen days after she had been frightened by the second shock of the earthquake, which happened that year. The midwife telling the husband, that there was something uncommon in his wife's case, and I being immediately called, she told me that she certainly found two children presenting at once, and was afraid that they might entangle and interrupt one another in the passage; that the head of the one presented, which she suspected was dead, from the skin of the head feeling soft and pappy, and the bones of the skull loose within the integuments: that the legs of the other presented, which she was certain was alive, from feeling the child move them.

"No sooner had the midwife given me this information, than the patient was attacked with a very strong pain, and the midwife was desired to make haste into the room, for that she would certainly have work immediately; accordingly she had just time to receive the first child, that presented with the head; it was dead, as the midwife foretold, and appeared to have been so from the time that she received the fright; and in two or three pains more, the child that presented with the feet was forced down, and delivered alive."

CASE V.—"Soon after I began to teach midwifery, I was called to one of the poor women who had bespoken me to attend her with my pupils. When I arrived, I found the breech presenting, with the thighs to the sacrum; but as the pains were gone off, on the discharge of the waters, and the breech was still high, I expected that it would require some time to stretch the parts more fully before it could come lower down, and be delivered. I went to a coffee-house in the neighbourhood, and sent for those who then attended me; but before they all arrived, a messenger came in a hurry, telling us, if we did not make haste, the child would be delivered before we could reach the place. This was actually the case. I told the pupils, that although they had missed seeing the labour, yet they would have an opportunity of observing the delivery of the placenta. I then examined; but instead of the placenta, I found the breech of another child presenting, in the same manner as the first, which, in two pains more, was delivered with very little assistance; and the two placentas, which formed only one cake, immediately followed.

"The children were small; and although the woman was of a small stature, yet neither she, nor any of her acquaintance, suspected that she was with child of twins."

CASE VI.—"In this instance, the arm of the first child had been protruded several hours after the membranes broke, and was pretty much swelled before I was called.

"As the woman lay on her left side, I tried to introduce my hand into the vagina; but finding the arm obstructed the passage, I doubled it, and easily pushed it before my hand into the uterus. While I went up farther, to search for the feet, I found another child inclosed in its membranes, a circumstance which made me advance more cautiously, for fear of breaking them, as they lay towards the left side, and fundus uteri, but more forwards than backwards: I had introduced my right hand, and finding that the legs of the child lay backwards, and to the right side, towards the fundus, I was obliged to withdraw that hand, and introduced my left, with which I brought down the legs, and delivered that child. The uterus immediately contracting, the placenta and membranes of the first child, with the membranes and waters of the second, presented; but the placenta was lowest, and being separated from the uterus, came easily down into the vagina, by pulling gently at the funis.

"Having delivered the cake, and finding a pretty large quantity of blood follow, I insinuated my right hand into the vagina, and found, within the membranes, the head of the other child presenting. Pushing farther up, and breaking the membranes, I turned this child, and brought it footling also. I ordered a cataplasm to be applied to the first child's arm, which was swelled; the swelling in a few days subsided, and the child did very well."

CASE VII.—"I was called in the next year to a woman in labour. The first child presented with the hands, feet, and funis in the vagina; I tried, as she lay on her left side, to introduce my hand and deliver the child; but as I could not keep the patient steady in that position I turned her to the supine posture. After I had introduced my hand into the uterus, I found the head high up to the left side; I then withdrew my hand, took hold of the legs, and delivered the child.

"Having tied and separated the funis, I desired the midwife to sit down, and deliver the placenta, by allowing it to descend slowly; but seeing her attempting to push up her hand, I desired that she might rather wait, and signified if there should be any difficulty afterwards, I would assist. She telling me there was some more work for me, I immediately suspected that there was a second child, which I found presenting in the same manner and brought footling also.

"The placentas not following for a considerable time after, I pushed up my right hand into the uterus, separated and delivered one that adhered to the left side; and after that the other which adhered to the fundus."

CASE VIII.—In this case three children were delivered by Mr. Proffer, eldest pupil to Dr. Smellie, who was then otherwise engaged. "I touched the woman," says he, "and felt, through the membranes, both hands and feet blended together. The os

internum being well dilated, I broke the membranes, disengaged the latter, and pulled them down to the passage, pushing up the head at the same time; by these means I finished the delivery.

"I fought afterwards for the placenta; but finding a more than usual resistance, I slid my hand along the chord into the uterus, where I found the membranes and waters of a second child.

"I gave a gentle pull to see if the first had not its own placenta; but finding a resistance, I opened the membranes of the second, which presented like the former, and consequently required the same treatment.

"Having divided the chords, I pulled then sometimes alternately and sometimes together, but without effect, so was induced to introduce my hand a second time, and extracted two placentulas firmly connected by an intervening membrane.

"By this time I thought my labour ended; but was deceived: for in a few minutes after she complained of fresh pains; and on enquiry, it appeared to be a third child, which presented a right hand and foot. I introduced my left hand into the uterus, and pushed up in order to get at the other foot; but the uterus being strongly contracted to the body of the child, it was with great difficulty I accomplished it: the placenta followed soon after."

CASE IX.—The delivery of three children is thus described in a letter from Dr. Harvie.

He was called to a patient about the latter end of the fourth month of her pregnancy; but she was as big as one come to the full time, and apprehensive of an ascites in the abdomen: however, on examining the belly, and she being sensible of the motion of the foetus, he found the bigness proceeded from the stretching of the uterus. Her complaints, from this time till she fell in labour, were chiefly cardialgia, vomiting, and difficulty of breathing, and costiveness; for all which she was often bled, and seldom missed taking magnesia. From the constant vomiting she daily lost strength, and was much emaciated.

When she was taken with labour pains he found the os uteri open to the diameter of half a crown, and the head of the child very low. Her pains being slow and weak, he ordered a clyster, which operated; after which the pains went quite off. When he called next day, he was informed that the membranes were broken, that a large quantity of waters was come off, and still continuing to drain away; and he was informed, that she had not been so easy for four months; for she could now breathe, and had taken some nourishment, but had no pains.

He was again called the following day at one o'clock in the morning. The pains were not strong or frequent; but the os uteri being sufficiently dilated, the child was born in about fifteen minutes.

After tying the navel-string, and giving the child to the nurse, he found the head of another presenting. At the first pain he broke the membranes, and in two more this child was also delivered. After taking care of this, he found there was a third, from the still great distension of the uterus; but the patient being faint, and in order to avoid the danger from the sudden emptying of the uterus, he pinned a long towel moderately tight round the abdomen, and gave her the following draught.

(No. 15.) ℞. Confect. Damocrat. ʒiʒ.

Aq. menth. fativ. ʒiʒ.

Sp. nucis mosch. ʒij.

Tinct. opii gtt. xv.

Syr. althææ ʒi. Misce.

Examining again, and not finding the membranes pushing down, or any part of the child; and being apprehensive that it might present wrong, he searched higher, and found the head and membranes at the brim of the pelvis. These being broken, this third child was delivered in the course of the next pain. Although the patient had hitherto lost but little blood, yet as there was more coming, and the woman was weak, he gently assisted and brought the placentas away; two of them were joined together, and one separate.

By this time she was very faint; but the draught taking effect, she dropped asleep, and after some hours so far recovered as to be able to bear the fatigue of shifting. She had a severe cough for three weeks before delivery, which gradually abated afterwards, and is now pretty well recovered. The children were three fine boys.

He observes, that from several twin cases which have fallen under his notice, he has reason to think that one principal evidence of a woman's being with child of more than one, is the uterus rising much earlier up in the abdomen, than is usual when there is only one. The above patient was as big at the latter end of the fourth month, as women are commonly at their full time.

CASE X.—This is a case of twins; the second child having been delivered, in the seventh month, by Mr. Giffard.

"I was sent for," says he, "about four o'clock in the morning, to the wife of a snuff-box maker in Dean-street, Red-lion-square, who was, according to her calculation, about seven months gone with child. I had been with her about three months before, when she was under some apprehensions of miscarrying, and by proper applications I cured her at that time; but now one foetus was brought away before I was sent for. I would have immediately passed my hand in search of the placenta; but the woman could not be readily persuaded to admit me, and made some struggle until she was overcome by the persuasions of her friends and the apprehension of the danger she was in, should it not be

brought away; so that at last she permitted me to pass my whole hand into the vagina, and soon to the os internum, which I found so much contracted that it would scarcely admit the ends of four fingers. But, having by degrees dilated the orifice, I introduced my hand into the uterus, and found something harder than a placenta. This proved to be another foetus inclosed in its membranes, which were much distended by the waters.

"I broke the membranes immediately with the ends of my fingers, and then putting my hand within them, I searched for the feet. The first part I met with was the head, which I passed by, and went on in search of the feet, and soon found one foot. This I brought out, and as I had sufficiently dilated the os internum, the foetus being likewise very small, I judged I might easily draw it out by the leg already brought down, without giving her fresh pain, by passing up my hand again to fetch down the other.

"I therefore took hold of the leg I had secured, and gently drew it forwards; I say gently, for if I had used any force, I might have torn it from the body, the leg being very small and tender: at the same time I advised the woman to assist by bearing down strongly, which much contributed to the bringing out of the hips, body, and head, all which soon followed. Upon passing up my hand to fetch the after-burdens, there being two entirely separate, I met with the placenta of the foetus first born, protruded and lying in the vagina; this I immediately brought away, and then repassing my hand, I found the other lying within the uterus, but wholly separated from it, so that I had no more difficulty in bringing this than the former."

In the Memoirs of the Academy at Paris (H. 1727, page 15, 20, 21), is an account of two children delivered eight days after one another.

CHAP. V. OF THE MANAGEMENT OF MONSTROUS BIRTHS.

MONSTERS are of various sizes and forms, and, unless very small, the posture favourable, and the woman well made, will prove the cause of a difficult and troublesome delivery. Sometimes a child is monstrous from a preternatural conformation of parts, such as a monstrous head, thorax, abdomen, &c. At other times, there is a double set of parts, as two heads, two bodies with one head, four arms, legs, &c. But such appearances seldom occur in practice; and, when they do, the delivery must be regulated entirely according to the circumstances of the case. A large head, thorax, or belly, must be opened. If two bodies united together are too bulky to pass entire, they must be separated; the

same of supernumerary limbs. If the posture be unfavourable, it must be reduced when practicable; otherwise the extraction must be made with the crotchet, in the best manner the circumstances of the case will admit of; always, in cases of danger or difficulty, giving the preference to the safety of the mother, without regarding that of the child.

CASES.

To what has been said on the subject in a former part of this work, we think it necessary to add the following instances of monstrous births, which are related in Dr. Smellie's works.

CASE I.—The history below is of two children adhering to one another at the side of the breasts and bellies. They had both hare lips, and but one navel-string; the vessels being separate as they enter the skin of the abdomen, and each child having its own. The mother, who before had seven or eight children, miscarried with these at the end of twenty weeks, from her great uneasiness, as she foolishly imagined, in longing for a chop of bacon. She was taken at first with a considerable flooding, which was moderated by bleeding, and anodyne medicines. The next day, finding some strong pains, her midwife was sent for, who delivered her in a few hours; notwithstanding their smallness, and one of them presenting with the feet, she found great difficulty in extracting them, as appeared by the laceration of one of them which was stitched up again. They had no signs of life. The mother has since had two fine children.

It is remarkable of the father of these children, that he had no teeth before the age of one or two and twenty; but afterwards had a very good set.

CASE II.—This child was born with part of the skull wanting. It was a male child, of an uncommon size in his body and limbs, with very broad shoulders, and a short, thick, brawny neck. The head was smaller than those of most infants that come in due season, as this did. The nose was broad and flat, the eyes full, large, and very prominent, so that the lids could not cover them; the ears were remarkably large and thick. There was no skull to cover the brain, and the edges of the bones of the lower part of the head were as straight and smooth as if they had been sawn asunder immediately above the orbits of the eyes. There was wanting the os frontis on the fore part, and on the back part almost the whole of the occipitis. The ossa bregmatis were entirely wanting, and as there was no scalp, the brain was covered by nothing but the pia and dura mater, which looked of a dark livid colour, and was pushed out in many places by the brain, so that it made an unequal surface for want of bones to confine it. This inequality and softness, together with the edge of the bones, was what surprised the midwife, and made her expect a more

difficult delivery. The account then given by the mother, as the probable occasion of this disaster, is as follows.

Upon the 9th of April, 1747, when she was near two months gone with child, she was grievously frightened with thinking on lord Lovatt, who was that day to be beheaded. Her husband was gone to see the execution amongst the crowd on Tower-hill, and when the news came to her hearing that a scaffold was fallen down, by which accident many people were hurt, and some killed on the spot, she immediately feared that her husband might be of the number, and was greatly affected. While she was under this dread and apprehension, an officious idle woman came to her and said, that a friend of hers, for whom she had a great regard, was killed on the spot, and that she saw his brains on the ground; upon this the poor woman put both her hands on her head in great agony, and immediately fainted away.

CASE III.—In the Philosophical Transactions (No. LXV. p. 2096) is an account, by Dr. Durlston, of a monstrous birth, which had two heads, two necks, four arms, and four legs perfect, and well shaped; but only one trunk. There was no appearance of lungs, and only one large heart, one midriff, one umbilical cord, one large liver, one stomach, four kidneys, two urinary bladders, two wombs. There was only one colon, which terminated in two intestina recta. It weighed eight pounds and a quarter, and the length from head to foot was full eight inches and a half.

CASE IV.—There is another monstrous female birth described by Dr. Samuel Morris, in the same work (No. 138, p. 961). There were two heads; and all the parts double above the diaphragm, and single below, except the appearance of two stomachs. The uterus was of a common size; but the clitoris large: there were only two legs and two arms, the secundines were very large, and weighed about eight pounds. One was dead, and the other just breathed.

CASES V. and VI.—We find another account of a double birth, in which the children were joined at the breasts (Philos. Transact. No. 2, p. 21). They did not wake and sleep together. They also cried, sucked, and exonerated apart.

The same paper relates, there was such another birth in Wales, and the children lived so long till they could talk to each other, which they did in tears, when they thought that one must survive the other; but both happened to die together.

CASE VII.—There is described a monstrous birth, much of the same kind as the two last, in the same Transactions, No. 308, p. 2245, by Mr. Robert Taylor.

CASE VIII.—In the Philosophical Transactions, No. 453, p. 837, is an account of a monstrous boy, seen at Montpelier by Dr. Andrew Cantwell. He was then about thirteen years old,

and had the lower parts of another boy attached, so that the fore parts of each faced the other.

CASE IX.—This is described in “Reflections on Generation, and on Monsters,” by Dr. Supervile. See Philosophical Transactions, No. 456, p. 294.

Besides the above cases, there are several other papers in the same work, describing births, in which the bones of the upper part of the cranium were wanting; in most of which the cerebrum and cerebellum were also wanting: those that were born alive died soon after the birth. (*Vide* No. 99, p. 6157; No. 226, p. 439; No. 228, p. 553; No. 234, p. 717; No. 251, p. 141; No. 320, p. 310).

In the Philosophical Transactions, No. 487, p. 325, is a letter from Dr. Huxham to Dr. Mortimer, concerning a child born with an extraordinary tumor near the anus, containing some rudiments of an embryo.

In the Philosophical Transactions, No. 472, p. 10, is an instance of spina bifida. See also our fourth volume, p. 12.

In the Memoirs of the Academy of Sciences at Paris (M. 1701, p. 112), is an account of a foetus found in the ovarium of a woman.

In the same (H. 1703, p. 43), an account of a puppy whelped without a gullet, a circumstance proving that the foetus could not be nourished but by the funis.

In the same (H. 1711, p. 26), is the description of a foetus without cerebrum, cerebellum, or spinal marrow.

See (*Id.* 1712, p. 40,) an account of a male foetus at its full time, which had neither brain nor spinal marrow, and which lived twenty-one hours, and took some nourishment.

Ibid. (M. 1732, p. 309), of a monstrous foetus with two bodies, the one male, the other female.

In the German Ephemerides there is a great number of histories of such monstrous productions. *Vide* also Ruysch.

Cases from Mauriceau.

I. In page 53, and 64 *Obs.* he mentions having seen a dead child of a woman lately delivered at seven months, of a very monstrous figure, having the arms and the feet quite misshapen, and the head without any neck, joined immediately to the breast, having on the head, instead of the brain, a sort of thick flat cap or cawl, like a red wen. This had a production like a tail, which reached along the spine as far as the os sacrum; and on the right side of the navel there was a considerable livid tumor like a ventral hernia, in which several of the contents of the abdomen were contained. This child had been dead some days before it was delivered, as appeared by the epidermis, which came off easily,

and the monstrous figure some have imputed to the disorder of mind and body, which a great fright or vexation the mother met with in the beginning of her gestation had thrown her into.

II. In page 301, and Obf. 363, he mentions his having delivered a woman of her first child, which had all the fleshy or muscular parts of its body quite hard and schirrous.

III. In Obf. 118, and page 63, he gives an account of his having delivered a woman in the eighth month, of a child, whose head was of a monstrous figure, being without any brain, but instead of all the upper part of the head there was only a reddish-brown substance; there appeared likewise the inferior extremities of the occipital bones, and the two eyes very prominent. Its feet were turned inwards. This monstrous conformation was ascribed to great fatigue in a journey.

IV. He mentions having seen, at the fair of St. Lawrence, two male children dead, whose bodies were joined together towards the upper part of the thorax. The mother had been five months gone; but no particularities are mentioned at the birth.

Monf. Lamotte, book 4, chap. 14, gives several cases of mutilations and deformities in children. In fact, these arbitrary combinations of twin parts in utero are of every degree of variety, as the cabinets of curious physiologists will testify; but there is perhaps none more curious in all respects, than the boy with two heads, born in the East Indies, and who lived long after the birth, described in a late volume of the Philosophical Transactions by Mr. Home.

CHAP. VI. OF PREMATURE DELIVERY.

DR. DENMAN, and some other eminent writers on midwifery, have alluded to this expedient as a method of preserving the lives of children, without adding to the danger of the women; if in any case the pelvis be so much distorted, or so small, as absolutely to prevent the passage of the head of a full-grown child, yet without falling so far short in its dimensions as to prevent the head of a child of a much less size from passing through it.

"Melancholy are the reflections," says Dr. Denman, "when a woman has a pelvis very much distorted (and such women have usually a wonderful aptitude to conceive), that there should be no chance, or very little, of preserving the lives of her children; and yet, in the course of practice, I have, in several instances, been called to the same woman, in five or six successive labours, merely to give a sanction to an operation, by which the children were to be destroyed. It is to the credit of the profession, that every method, by which the lives of parents and children might be preserved, has been devised and tried; and, though frequent occasions

for using some of these methods cannot possibly occur in any one person's practice, it is right that all should be acquainted with what has been proposed and done in every case, with or without success.

"A great number of instances have occurred to my own observation, of women so formed, that it was not possible for them to bring forth a living child at the termination of nine months, who have been blessed with living children, by the accidental coming on of labour when they were only seven months advanced in their pregnancy. But the first account of any artificial method of bringing on premature labour was given to me by Dr. C. Kelly. He informed me, that about the year 1756, there was a consultation of the most eminent men in London at that time, to consider of the moral rectitude of, and advantages which might be expected from, this practice, which met with their general approbation. The first case in which it was deemed necessary and proper fell under the care of the late Dr. Macaulay, and it terminated successfully. Dr. Kelly informed me, that he himself had practised it; and, among other instances, mentioned that the operation had been performed three times upon the same woman, and twice, the children had been born living. The thing has often been the subject of conversation, and proposed by writers, but some have doubted the morality of the practice; and the circumstances which may render the operation needful and proper have not been stated with any degree of precision.

"With regard to the morality of the practice, the principle being commendable (that of making an attempt to preserve the life of a child which must otherwise be lost), and nothing being done in the operation which can be injurious to the mother, but, on the contrary, a probability of lessening her sufferings; I apprehend, if there be a reasonable prospect of success, no argument can be adduced against it, which will not apply with equal force against inoculation, against medicine in general, and, in fact, against the interposition of human reason and faculties in all the affairs of life. Such an argument would lead us back to the absurd doctrine of predestination, if, with justifiable intentions, and without producing any comparative present evil, we may not use our endeavours to extricate our fellow-creatures from evils which threaten them, or under which they may be actually oppressed."

Having thus settled the point as to the morality, Dr. Denman next considers the safety and utility of the practice of bringing on premature labour in certain cases.

"As to its safety," says he, "having reasoned upon the structure of the parts concerned in the operation, and having carefully attended to all the circumstances which have occurred when it had been performed in more than twelve cases, in which I have either performed it, or it has been done by my advice and

persuasion, I have not known one untoward or hazardous accident that could be imputed to it; and in the greater number of these cases the children have been born living. Many instances of this operation being performed successfully, have, since my first proposal of it, been recorded by others. I therefore feel authorised to say, as far as my reason or experience enables me to judge, that the operation of bringing on premature labour, in the cases to which this discourse has any reference, is perfectly safe to the person on whom it may be performed.

“ But respecting the utility of the operation, the statement first made of the intention or purpose with which it ought to be done, that is, to try whether the head of a small child will not pass through a pelvis too much narrowed in its dimensions to allow one of a common size to pass, will shew, that the objects of the operation are circumscribed within certain limits. Should the cavity of the pelvis be of its natural size, this operation is out of the question, and never can be required on that account. If the cavity of the pelvis, though reduced in its dimensions, be such as to permit the head of a full-grown child to be squeezed through it by the force of strong and long-continued pains, this operation is not required, and ought not to be performed. If the pelvis be so far reduced in its dimensions as not to allow the head of a child of such a size as to give hope of its living to pass through it, the operation cannot be attended with success. It is in those cases only in which there is a reduction of the dimensions of the pelvis to a certain degree, and not beyond that degree, that this operation ought to be proposed, or can succeed.

“ It would be highly satisfactory, if I were able to state with precision the exact dimensions of the cavity of the pelvis of the person on whom it might be needful to perform this operation, and on whom it might be performed with success. But, as all the instruments, contrived for measuring the pelvis in the living woman, too imperfectly answer this purpose, to enable us by them to form a guide of practice; and as the head of a child before it is born can never be accurately measured, and of course the relation between them must be unknown; the determination must be left to opinion, or to former proofs: and those who are experienced will not commit any great mistake in their conjectures, even if they have no other than this probable evidence. Under circumstances and in situations just preventing the successful use of the *vecis* or forceps, and just compelling us to the fatal measure of lessening the head of the child, it may become a duty to propose, on a future occasion, the bringing on premature labour; at seven months, or any later time, according to our sense of the disproportion existing between the head of a child and the cavity of any particular pelvis. It can hardly be doubted, but that the casual events of practice first inspired the notion of this method in the

mind of some person, who, adverting to the fortunate termination of premature labours coming on spontaneously, or of very small children, in cases of distortion of the pelvis, endeavoured to imitate by art what not unfrequently happens naturally. It is also to be considered, that in a child born prematurely, the bulk of the head is not only much less than at the full time, but the component parts of the head are more loosely connected and far more pliable, and of course its volume is more readily adapted to the space through which it is to pass."

Here Dr. Denman introduces the following case.

"A lady of rank, who had been married many years, was soon after her marriage delivered of a living child, in the beginning of the eighth month of her pregnancy. She had afterwards four children at the full time, all of which were, after very difficult labours, born dead. She applied, in her next pregnancy, to Dr. Savage, whom I met in consultation. By some accounts she had received, she was prepared for this operation, to which she submitted with great resolution. The membranes were accordingly ruptured, and the waters discharged, early in the eighth month of her pregnancy. On the following day she had a rigor succeeded by heat and other symptoms of fever, which very much alarmed us for the event. On the third day, however, the pains of labour came on, and she was after a short time delivered, to the great comfort and satisfaction of herself and friends, of a small but healthy child, which is at this time nearly of the same size it would have been, had it been born at the full period of uterogestation. In a subsequent pregnancy, the same method was pursued, but whether the child was of a larger size than before, whether there was any mistake in the reckoning, or whether the child fell into any untoward position, I could not discover, but it was still born, though the labour did not continue longer than six hours."

"There is another situation," continues the doctor, "in which I have proposed, and tried with success, the method of bringing on premature labour. Some women, who readily conceive, proceed regularly in their pregnancy till they approach the full period, when, without any apparently adequate cause, they have been repeatedly seized with rigor, and the child has instantly died, though it may not have been expelled for some weeks afterwards. In two cases of this kind I have proposed to bring on premature labour, when I was certain the child was living, and have succeeded in preserving the children without hazard to the mothers. There is always something of doubt in these cases, whether the child might not have been preserved without the operation; but, as such cases often come under consideration, and as I am disclosing all that my experience has taught me, it seemed necessary to mention this circumstance.

"I may be allowed to conclude this subject, without entering

into a detail of the manner in which premature labour may be brought on ; because no person qualified to decide on the propriety of this operation can be ignorant of the manner of performing it. I must however take notice, that when the membranes of the ovum are punctured or ruptured, some caution is required to avoid injuring the head of the child, which may lie close to them ; and, after the discharge of the waters, it is necessary to observe, that the time when the action of the uterus may come on will be very different ; this happening in some instances in twelve hours, and in others not for twelve or fifteen days. During this interval we have only to wait patiently for the event, and when the pains come on, the labour, if natural, is to be suffered to proceed without interruption ; or, if irregular, such assistance is to be given, as the peculiarity of the case may require. It is scarcely necessary to mention, that when we are considering the propriety of this operation, it ought not to be performed when the patient labours under any hazardous disease ; and that if complaints should afterwards arise, our endeavours must be exerted to remove them before the accession of labour."

No doubt the high testimony of this eminent and experienced accoucheur will have considerable weight on the opinions of the generality of practitioners. It is our duty, however, to place so important a question in different points of view, in order that the reader may be enabled to make up his mind as to the eligibility of the practice. To this end we cannot do better than give a place in the present chapter to Mr. Barlow's judicious observations on the advantages and disadvantages of inducing premature labour, with a view of superseeding embryulcia, the section of the symphysis pubis, and the Cæsarean operation, which appears in the *Medical and Physical Journal*.

" On a superficial view of the subject," says Mr. Barlow, " it would appear to be pregnant with but few difficulties ; but, on a more minute enquiry into the attendant circumstances, we shall be compelled to acknowledge that many obstacles present themselves, some of which appear of considerable cogency ; whether the removal of these lie within the sphere of obstetric art, or, otherwise, wait the interference of the legislature, time alone can only determine ; it is nevertheless incumbent on every accoucheur (before he attempts the operation) to establish in his own mind the morality of the practice, and exert his utmost skill, by every possible means, to extricate the environed fœtus from impending destruction.

" This operation, however, can seldom be put in practice before it has been proved, by the event of a former labour, that the pelvis was so much distorted that the life of the child must have been inevitably destroyed before delivery could be accomplished ; and as the human pelvis is liable by disease to become contracted into

various shapes and degrees of distortion, from that of a well-formed pelvis to one so much contracted in its different apertures that delivery per vias naturales becomes in some instances utterly impracticable. In these different shades of distortion, art has furnished us with means of accomplishing delivery in various ways, according to the exigency of each individual deviation from the natural standard; but as authors, even in the present improved state of the art, differ in opinion on these important points of practice, it is to be hoped that every laudable endeavour to obviate the difficulties attendant on parturition will promote a free enquiry on the subject, and ultimately have a tendency to the general good of society. To become acquainted with the fundamental principles of midwifery, and to ascertain the exact dimensions of the pelvis, is a matter of the greatest moment to the accoucheur, before he determines on the operation; as want of this necessary knowledge made by the touch, may involve the practitioner in irretrievable injury to the fœtus. The distortions of the pelvis are generally induced by rachitis in the infantile state, or by malacoſtion and exostoſis in the adult; it is these different causes and degrees of distortion which the accoucheur should keep in view when making the admeasurement per vaginam. When passing the finger up the vagina, and any part of the os sacrum, or lumbar vertebræ, be perceived to project into the cavity of the pelvis, or if the rami of the ischia, or the symphysis of the os pubis, approach unusually near each other, we may conclude that some degree of original mal-conformation exists in the bones which compose that aperture; yet it not unfrequently happens that the superior aperture is considerably contracted, and the inferior cavity, or outlet, is even wider than natural: and to obtain a sufficient idea of the state of the apertures of the pelvis, in every direction, I have frequently found it necessary to have recourse to the passing of the whole hand into the cavity of the pelvis; the three first fingers of which are to be conducted to the brim, where the admeasurement may be generally ascertained to the space of a few lines, by placing them in different directions in the superior strait, and if, when kept close together, the side of the fore finger touch the os pubis, and the third the projecting angle of the sacrum, we may conclude that the space betwixt the two points is manifestly no more than two inches, an opening through which no living mature fœtus can possibly be extracted alive; and when only two fingers can be placed in the same manner, and betwixt the two angles above mentioned, the accoucheur may rest satisfied that, except a greater space can be obtained in either of the sides where the admeasurement is made, that no other mode of delivery, per vias naturales, can, with safety to the mother, be adopted than either the crotchet or Cæsarean section. This method of proceeding will generally furnish the accoucheur with an accurate

knowledge of the dimensions of the pelvis, and direct him to the most eligible resources in cases of extreme deformity. In every instance where I have attempted to terminate the delivery with the crotchet, it has been my constant practice to ascertain the exact dimensions in every possible direction, that I might be armed with every requisite auxiliary in each succeeding labour.

“To those whose opportunities of practice have not furnished them with a sufficient share of discrimination by the touch per vaginam, to be enabled to ascertain to a tolerable degree of exactness the various shades of distortion which the female pelvis is liable to, I would recommend the use of the calipers, as an instrument more easily applied, and possessing superior advantages of accuracy over any other.” A representation of this instrument is given in plate VI. of Baudelocque’s work translated by Mr. Heath. An account of their mode of application and utility, Mr. Barlow transcribes from the 130th page, vol. I. of that author, in the following words:

“To determine how much the superior strait is defective in the aforesaid diameters, and measure it by means of these compasses, we take the thickness of the woman, from the middle of the mons veneris to the centre of the depression of the base of the sacrum posteriorly, by applying one of the points of the instrument before, against the symphysis of the pubis; and the other behind, a little under the spine of the last lumbar vertebra; and deduct three inches from that thickness in women that are thin, for the base of the sacrum, and the anterior extremities of the ossa pubis; the thickness of these latter being at most but six lines, and that of the base of the sacrum two inches and a half; and so constantly so, that I have not found a difference of a line in about five-and-thirty pelves, distorted and contracted in all manner of ways, and in all possible degrees.

“This subtraction of three inches from the external thickness of the pelvis, in the said directions, is also sufficient when the lustiness is moderate; and we may add one or two lines more, when it is excessive, because the fat which forms the mons veneris, easily shrinks under the lenticular extremity of the leg of the compasses. The result of this procedure is so exact, that the pelvis measured with the common compasses after opening the body, was not above a line over or under my estimation in any one of my experiments. A greater precision, if we could obtain it, would be useless, since the choice of the most proper methods for terminating the delivery in a given case, cannot depend on a line more or less in the diameter of the pelvis. According to these data, the knowledge of this diameter is easily obtained. It is four inches when the external thickness of the pelvis measures seven; it is but three when the latter only measures six; and but two when it does not exceed five, &c. I suppose the woman to be thin, as most of those are who have been rickety.”

"In considering the mechanical descent of the foetal cranium through the pelvis," continues Mr. Barlow, "it will appear manifestly necessary that the dimensions of the one should bear some mathematical proportion to the other; to obviate certain difficulties, Nature has wisely ordained a peculiarity of structure to the foetal cranium, the mechanism of which is so formed, that the head of the foetus is less compact than that of the adult, and the bones more loose and numerous, consequently are better adapted for passing through the pelvis than if they had been firmly joined together.

"The growth of the foetus also varies very much during the different stages of gestation; the embryo increases more rapidly in size during the first weeks after conception (than after it takes on the foetal state, till the end of nine months), though this increase has various stages of irregularity, till the full period of utero gestation. The walls of the pelvis are so firmly connected together, and the change which the foetal head is constantly undergoing as gestation advances, will ever remain an obstacle to this species of delivery, owing to the uncertain magnitude and degree of resistance opposed to the pelvis during its passage through that tube. Without multiplying the various positions which the foetal head assumes during the approach of labour, it may be necessary to state, that the general and most natural presentation, is the vertex with the ears nearly in a diagonal direction betwixt the pubis and sacrum; the cause of this part of the head descending first into the pelvis, may be owing in some measure to the foramen magnum being situated nearer the occiput than the face, consequently is more mechanically inclined to become first pushed into the superior aperture of the pelvis; sometimes, however, the anterior fontanelle may at the commencement of labour be perceived to present in the axis of the superior strait, but this small deviation is generally rectified by the repeated action of the uterus, which forces the vertex into the axis of the pelvis, whilst the chin is bent down upon the breast, and the face turned into the hollow of the sacrum. If this process was not to take place, and the fontanelle was forced out of its proper direction, the labour would prove tedious, and probably might sometimes terminate in a face presentation. The forceps and lever are instruments well calculated for extracting the foetus within certain bounds of difficulty, and claim a preference over every other invention, when used with a view of preserving the lives of both mother and foetus; and when the small diameter of the superior strait of the pelvis offers a space for the entrance of the head of the foetus, equal to three inches in diameter, we may not altogether reject every hope of extracting a living mature foetus through an aperture of the above specified dimensions, with either of these instruments; or if the child's head is small, and not too firmly ossified to elongate; and

allow the bones to overlap by pressure, and the forcible action of the uterus, we may sometimes under these circumstances meet with a favourable termination, when the diameter of the pelvis is rather under three inches. On the contrary, when the mother's pelvis is ascertained to measure no more from pubis to sacrum, or in any other of the apertures, than two inches, or two inches and a half, I am persuaded that no mature foetus can possibly be brought through a space of these dimensions, without destruction to the child; it is then in this intermediate degree of distortion, betwixt the possibility of delivery (without injury to the mother or foetus), with the forceps or lever, and that shade of deformity which requires the application of the crotchet, where premature delivery seems most likely to become admissible. A question then will naturally present itself to every accoucheur who deliberates on the subject, namely, to what degree of compressibility is the mature foetal cranium capable of undergoing, without destruction to the child during its passage through the pelvis, and what analogy does it bear in computation with one of seven or eight months? The solidity of the foetal head, and the re-action of the bones of the pelvis upon that body, are so variable in different children, that no exact criterion can be formed before birth; however, I will venture to risk an opinion, that the diameter of the foetal head, under certain situations, will bear a reduction in size by pressure, from a quarter to half an inch, without producing much injury to the foetus; but when the diameter of the head becomes much reduced beyond this, by either the forceps or lever, their application becomes dangerous to the child, and of course inadmissible on that score. I consider the foetus a mere passive body during its passage through the pelvis; nevertheless, I am well aware that examples are not wanting, where the foetal head has undergone a much greater reduction by compression without proving fatal; however, I would have it understood, that what I have advanced is what more generally takes place, and the deviations from the above rule are only exceptions therefrom. Some difference may result from the reduction of the volume of the cranium of a foetus of eight, and one of nine months, as it will be generally allowed that the bones which compose the cranium of the latter will not admit of the same degree of reduction when compared to the former, yet, perhaps, a less variation in the size of the head will take place betwixt the two, during their passage through the pelvis, than what at first would appear probable, owing to the greater power of action of the uterus during labour upon the body of a foetus of nine months, than upon an immature one of seven or eight; and some difference of result may also arise to the foetus from the length of time which may elapse during the passage of the head through the aperture of the pelvis.

“ The next question which occurs is, in what degree of distor-

tion of the pelvis it becomes necessary to have recourse to this operation? This point will not be easily ascertained, even if the accoucheur was allowed to make an examination *per vaginam*; and as this is a matter not altogether attainable during gestation, it becomes requisite to state the circumscribed dimensions of the pelvis, wherein this operation is more likely to meet with success: I presume then that a pelvis, the small diameter of which measures from pubis to sacrum about two inches or two inches and a half, appears to favour the success of this operation more than any other dimensions; for, on the one hand, it is sufficiently evident that a mature foetus cannot be born alive, when the dimensions are under two inches and a half; and on the other, when the short diameter does not exceed two inches, the crotchet becomes necessary; and should the superior aperture measure only one inch and a quarter in the widest part of its superior conjugate diameter, the only resource for the safety of the mother and foetus is the Cæsarean operation.

“ If it is proved that this operation cannot be performed with any degree of certainty of success to the foetus, except where there is a space to be gained in some part of the superior aperture, from two inches to two inches and a half, then it will follow that this mode of delivery must be very much limited, inasmuch that a considerable degree of hazard will always attend it, owing to the want of accuracy in discriminating betwixt the relative size of the foetal head and the dimensions of the pelvis. Having now pointed out the diameter of half an inch, as the most warrantable space allotted for the success of this species of operation, when performed at any time from the latter end of the seventh to that of the eighth month of utero gestation, before or after which periods, I think no one justifiable who induces premature labour under these circumstances; nor can I altogether give credit to those accounts, from whatever source they may have been gleaned, where it is asserted that premature delivery has been successfully adopted when performed early in the seventh month of pregnancy, and where the diameter of the pelvis measured not more than two inches in the widest part.

“ When this operation is had recourse to, and the dimensions of the pelvis are such as promise success, we ought to defer the attempt as near to that period fixed by nature for the full evolution of the foetus as circumstances will admit, that thereby the child may acquire every possible advantage to ensure a healthy state of existence after birth. The period of eight months, or thereabouts, is the most advantageous time for the performance of this operation, when we consider the precarious state of a foetus at a much earlier period; for I will venture to predict, that not one in twenty can survive the birth so completely as to be reared, where labour is excited earlier than the seventh month of gestation: no doubt, a

few exceptions may be opposed to this general conclusion; but if we consider the puny state of these short-lived individuals, and the misery which their premature birth subjects them to, we shall have no cause to approve their situation; and few would prefer such an ephemeral state to mere nonentity.

“ It is to be wished, that authors who have had recourse to this operation had been more explicit in their accounts respecting the exact period of gestation, and the premature fate of children, and how long they survived that event; for it is not a sufficient incitement to the operation, merely to bring a being into existence, which must inevitably perish soon after birth. And this immature mode of delivery would consequently be a means of subjecting the mother oftener to a state of gestation than if she was allowed to complete the period of nine months. To obtain premature delivery, the membranes which envelope the fœtus are generally artificially ruptured prior to that event; and the time which elapses before the uterus resumes its expulsive efforts are very variable, inasmuch that in some cases even several days have passed before that organ has completed its evolution. When the waters are thus evacuated, and the fœtus left in close contact with that viscus during its repeated contractions, I am disposed to consider the life of the child, during its exit through the pelvis, involved in some danger, and that proportionable to the degree of distortion, and date of gestation. It is not sufficient that premature labour should be indiscriminately produced at a given period of gestation, merely with a view of superseding embryulcia, it is of more importance to look forward to the preservation of the child; for every attempt made as early as the sixth month of gestation, either with the intent of avoiding embryulcia, or preserving the life of the fœtus, will answer no other purpose than *jugulare mortuos*; for, as I have before observed, and what I wish further to inculcate is, that every delivery excited by art, or otherwise casually taking place at an earlier period of pregnancy than the seventh month, will generally prove destructive to the fœtus, either during the time of delivery, or very soon after that event.

“ The sufficiency of augmentation of space gained by the section of the symphysis pubis in extreme deformity of the pelvis, and the manifest danger attending that operation, are circumstances sufficiently warrantable to preclude its use as a substitute for any of the above-mentioned modes of delivery. The Sigaultian operation frequently involves the fœtus in imminent danger when the distortion is considerable; and in some instances where the section has been made, the consolidation of the sacrum and ilia have been so firmly united, that no adequate space could be gained by a division of the symphysis pubis for the extraction of the child, and delivery has afterwards been obliged to be terminated by the crotchet or Cæsarean operation; and it has been

doubted, and with sufficient reason, whether the Sigaultian operation has ever been successful to either mother or child, in cases where the superior aperture, from pubis to sacrum, measured less than two inches and a half; hence will appear the insufficiency of this operation, and the necessity of its being banished in future from the practice of midwifery*.

"It is a matter of some consequence for the accoucheur to discriminate, in cases of distortion of the pelvis, between exostosis and malacostion, as in the latter the bones will sometimes give way considerably, either by the introduction of the hand, or the impulse of extracting the child.

"Two cases of this species of deformity have fallen under my care; in one of which, the projection of the lumbar vertebra and the connecting angle of the sacrum were so much bent into the cavity of the pelvis, that on the introduction of the finger up the vagina a protuberance presented to the touch, very much resembling the head of the foetus, pretty far advanced into the pelvis. On carrying the finger a little higher up, past the projection, I could ascertain the head of the child; but on moving the finger round the projecting part, the distortion was so great, that the whole circumference, in any direction, did not exceed that of half a crown. This was on the 29th of April, 1792, at which time I delivered her with the crotchet, and the bones of the pelvis yielded considerably to the impulse of the head of the foetus, which acted like a wedge during the efforts of extraction; yet, notwithstanding the pliability of the bones of the pelvis, and the debilitated state of her constitution, she recovered speedily, and without interruption. On the 22d of February, 1794, I was in the neighbourhood where this poor woman resided, and hearing of her being still alive, I was led by curiosity to pay her a visit, and, if possible, to obtain permission to examine her per vaginam, which was readily granted. I found the rami of the ossa ischia at their junction with the rami of the ossa pubis overlapped each other, leaving a small opening under the symphysis pubis, sufficient to admit the finger to pass into the vagina by that passage, and another aperture below, but rather larger, and parallel with the tuberosities of the ossa ischia. From what I have been since able to learn, she survived this period near two

* "Amongst the numerous evils attending the Sigaultian operation, the laceration or separation of the sacro iliac symphysis is one of the most dangerous, and to obviate which, and at the same time allow a sufficient separation of the symphysis pubis, appears no easy matter; yet, to accomplish which, I have however thought, that if a vice could be fixed externally upon the hips of the woman, with a screw so managed, that during the operation and subsequent treatment no more space should be allowed to take place than what was sufficient for the extraction of the foetus, by that means the injury in question would be in some measure obviated."

years, at which time she was become so crooked, that her breast and knees were almost in contact with each other, and after her death it was with difficulty she could be put into the coffin. This woman bore nine children, and died in the thirty-ninth year of her age: I attended her in the preceding labour to that above mentioned, which case was lingering and tedious; however, I succeeded by terminating the delivery with the lever, and preserved the life of the child. The other case of malacoſtion occurred to me in this town, about three years ago; the woman was in a dying state before I was consulted. On examination, I found the pelvis very much distorted, and suspecting the deformity to arise from a state of malacoſtion, I was induced, from the circumstances of the preceding case, to attempt delivery; and this more particularly, as the poor woman expressed an earnest desire to be released from her present burthen, rather than die undelivered. On enquiry, I learned that she had only just completed the seventh month of gestation; this stage of prematurity induced me to attempt to turn the fœtus, and deliver by the feet, by which means I might give the child a greater chance of life; but with respect to the mother, there was not the least prospect of her surviving delivery long. The os uteri being dilated, I accordingly introduced my hand, but the apertures of the pelvis were so much diminished in their dimensions, that it was with considerable difficulty; however, I succeeded, and delivered the woman of living twins; she died in about twelve hours after, and the children did not survive their birth many days. Having obtained leave to inspect the body afterwards, I found the dimensions and structure of the pelvis as follow: The conjugate, or antero-posterior diameter, from the symphysis pubis to the projecting angle of the sacrum, measured two inches and a half; and the antero-posterior dimensions on each side of the sacro iliac-symphysis, between these two points, were, in some places, a few lines more than two inches and a half; from which it is obvious, that the form of the superior aperture of this pelvis had a triangular appearance. The rami ischii approached so near each other, that the space left betwixt them would scarcely admit one finger; and on the introduction of the hand, when proceeding to turn the fœtuses, these bones receded from each other very considerably; and the same effects were observable in the superior strait. The spongy nature of the bones of this pelvis were also manifested, by having very little cretaceous matter in their substance, and their texture was so soft, that they were easily cut with a knife. Many advantages, I am confident, may result from an accurate knowledge of the diseases and structure of the bones of the pelvis prior to delivery; it is, I am persuaded, from a want of this information, that the Cæsarean operation has so often proved fatal in this country, for there is reason to suppose,

that most of the women on whom that operation has been performed in this kingdom, have been afflicted with malacoction, and consequently in an irrecoverable state, independent of any injury inflicted by the operation itself; and perhaps, if the nature of the disease had been more clearly understood, delivery per vias naturales might, in some instances, have been accomplished with safety to the child, without having recourse to any other mode of delivery; and in these cases, where malacoction has made those dreadful ravages in the female constitution, beyond which the art of medicine has hitherto fallen short of establishing, it would be a nugatory practice, when attempted only with the view of preserving the life of the mother, to have recourse to either the Sigaultian operation or the Cæsarean section, as the woman would inevitably die, even if exempt from a state of gestation. If we advert to the numerous cases of Cæsarean section performed on the continent, compared with those of this country, it will be obvious, that the comparative fatality has been owing to this disease pre-existing to the operation; for, in no instance where the Cæsarean operation has been performed in this country, has it proved successful to the woman, except the case of Jane Foster, on whom* I performed the Cæsarean operation with success, at Blackrod, in Lancashire, a few years since; in which case the operation became necessary, on account of a deformity of the pelvis, incurred by an accident prior to a state of gestation, and not from any constitutional disease. The failure of success attendant on the Cæsarean operation betwixt this and a neighbouring nation, is more ascribable to constitutional disease, which those women had laboured under in this country, who have undergone the operation, than to any difference of climate or mode of operating.

“When premature delivery is attempted, with a view of superseding the Cæsarean section, it can only become necessary when the dimensions of the pelvis are such as preclude every other mode of delivery per vias naturales; upon this ground the practice will be confined to the embryon state, or at least soon after it has acquired to that of the foetal period. The solicitude of the accoucheur in this extreme degree of distortion of the aperture of the pelvis is wholly directed to the preservation of the life of the mother, as every endeavour within the limits of our art, when tending to preserve the fœtus in these situations, will be abortive; and how far the morality of the practice may

* Vide Medical Records and Researches, p. 154.

be justifiable, when performed with the view of preserving the life of the mother, and sacrificing that of the foetus, is not a matter easily determined; the well-known aptitude inherent in a woman to conceive under these circumstances, and the number of foetuses eventually destroyed with the intent of preserving the life of the parent, are incidents of the utmost importance to the community, and claim a proportionate share of consideration from every accoucheur concerned on these unfortunate occasions. In a situation so depending, is the accoucheur excusable who tacitly complies with the requests of the mother, and voluntarily sacrifices a number of immature foetuses with a view to her own preservation? As the Cæsarean operation in this situation may be made a matter of choice, may it not be allowable for the mother to exercise her judgment on the occasion? In certain cases, where the distortion of the pelvis is not very considerable, it is a practice adopted by some practitioners, as soon as the hand is admissible into the uterus, to return the presenting head of the foetus, and deliver by the feet; how far this mode of practice may be justifiable I cannot pretend to say, as I am at a loss to conceive how any material advantage can be obtained by reversing the head, except it be where the uterine efforts are too feeble to accomplish the exit of the foetus in a natural presentation, and where the advantage gained arises from the superior degree of power excited by the accoucheur over that of the uterus. In cases of this nature, and where the diameter of the superior aperture measures no more than three inches from pubis to sacrum, the head of the foetus will generally, by the repeated action of the uterus upon its body, be forced a certain distance into the brim of the pelvis; when this is accomplished, and the head is ascertained to have advanced one-third within the superior aperture, it will be advisable to attempt delivery with the lever; for I have, in a few instances, succeeded with perfect safety to both mother and child with this instrument, even in cases where the crotchet has been used in the preceding births; hence will appear the advantage of waiting till the head of the foetus is become so far advanced in the pelvis, that the lever is admissible, rather than involving the life of the child in unnecessary danger, by the implicit act of turning and delivering by the feet; a practice, even in the most promising situations, always attended with danger to the foetus, and which has not hitherto been explicitly made clear by authors.

"Another situation wherein premature delivery has been adopted, is in cases of habitual miscarriage at a certain period of gestation, beyond which the foetus is supposed to die. The practice of inducing premature labour while there remains a prospect of the foetus being alive, will involve the accoucheur in much

ambiguity, particularly as the exact date of impregnation cannot clearly be ascertained, nor can we altogether obtain a certitude of the life of the fœtus in utero, or whether the woman might not go to her full reckoning, till the art of midwifery has arrived at that acme of perfection, competent for the acquiring of the knowledge of these data. I think no one excusable who attempts this species of delivery, as instances are not wanting, where, after a number of periodical immature births, the woman has, at length, gone to the full period of nine months, and become *mater familias*.

“ Authors appear divided in opinion respecting the danger incurred upon the mother, by exciting premature labour; the parity of hazard which results from this species of birth, on the score of the woman, at the period of seven or eight months, will vary according to circumstances, when contrasted with the event which will follow the termination of a labour at full time, and where the pelvis is distorted to the degree which I have fixed upon as indicating this operation.

“ Were we to form an opinion on the event of a miscarriage at the above-mentioned period, we might be led to conclude, that little danger to the mother would follow this mode of delivery; but as the uterus is an organ in no respect governed by the will, and the efforts of that viscus are most regular when left uninterrupted, therefore no comparison will hold good betwixt a premature delivery and one artificially produced, nor betwixt one at the full period of pregnancy where the pelvis is well formed.

“ An objection of much weight against this operation will naturally impress the mind of every humane accoucheur, namely, the difficulty of secrecy by which premature labour is effected; for I am firmly persuaded, if ever the method should be divulged amongst a certain class of individuals, it will soon become too generally known, and the abortive attempts will be innumerable; this will doubtless defeat the intention of the operation, and lead to a crime of a most cruel and inhuman nature.”

We have thus far considered the question of exciting premature labour, as a means of effecting delivery, under circumstances which seem to justify the attempt. It may not be amiss to shew next the dreadful mischiefs which may result from it, when ignorant or unprincipled accoucheurs employ it with a view to spare themselves the fatigue of a long attendance. A stronger instance can scarcely be adduced than the following case of Laborious Parturition, with the consequences, described in the *Memoirs of the Medical Society of London*, by Mr. Wilkinson, of Sunderland.

“ In the month of July, 1748, Elizabeth Lawrence, a married woman, low of stature, but of a good and healthy constitution, then thirty-two years of age, fell in labour of her first child.

The presentation was natural, and the membranes had broken early on the second day: this she observed was occasioned by the rude examinations of the midwife then attending.

On the afternoon of the third day she became greatly exhausted, the pains having left her: the child's head had advanced pretty early into the cavity of the pelvis, in which position it still remained, without being much altered by the pains.

From the beginning of the labour, except on the first day, she had made no water. The custom, which at that time was in use, and still prevails among the common people, of drinking large quantities of spirituous liquors in their gruel, with a view to promote labour pains, had greatly increased the secretion of urine; her abdomen became sore and greatly distended. Unfortunately no notice was taken of this by the gentleman called to her assistance, of course the introduction of the catheter was neglected.

The cessation of the pains, narrowness of the pelvis*, and impracticability of applying the forceps, seemed to render it necessary to open the child's head. This, it seems, was literally the case, from the patient's description of the long scissors, and other instruments.

After some degree of exertion the head was brought forth; yet the grand difficulty, occasioned by the shoulders, required the united assistance of two females to that of the accoucheur: at length, by repeated efforts for the space of two hours, the delivery was at last effected; but, at the very instant the shoulders protruded, she felt something give a crack within her, and immediately a sudden gush of water followed, equal to four quarts, or upwards. The abdomen instantly subsided, and the patient felt herself easy. The placenta followed, a very short time afterwards, with little or no hemorrhage.

Being put to bed, she found herself very wet, her urine continuing to run off constantly, so that a great number of cloths were necessary to absorb the moisture.

On getting up two days after, for the purpose of having her bed made, she felt at that time an inclination to make water, but was surprised that it came away in an involuntary manner, and that she had lost the power of retention.

On the third or fourth day, she found herself much worse, being seized with rigors, accompanied with heat, thirst, and restlessness; the whole of the parts of generation internally, as well as the external labia, became much inflamed and tumefied. Suppuration next followed, with a considerable discharge of foetid matter from the vagina, and external parts; many sloughs were

* On dissection the pelvis appeared small.

thrown off, one of which was so large as to induce the gentleman attending to suppose it the urinary bladder. The swelling having by this time subsided, and the parts being greatly denuded of their covering, the smarting occasioned by the acrimony of the urine became more severe, frequently occasioning a troublesome hæmorrhage. Strong uterine contractions, which she compared to labour pains, coming on at the end of a fortnight, produced a prolapsus as large as her fist. In short, after a variety of sufferings, she found herself, at the expiration of six weeks, so much better, as to be able to walk about the house, and get to the door; but the constant dribbling of urine and prolapsus vaginæ still remained. Her situation was the more distressing, as the stools, particularly when soft, passed from a communication through the rectum into the vagina. Several attempts were made to reduce the prolapsus, but the irritable state of the parts, and contractions of the uterus, always prevented her from using a pessary.

After the expiration of three years, she was attacked with what she called grinding pains in her belly, back, and loins, accompanied with excessive sickness and retching; for which she was bled, and the menses coming on soon after, she found herself relieved: the time of their continuance was three or four days.

Another year being fully completed, she was taken ill as before, but became better by bleeding, and the return of the catamenia, which continued upon her a whole week. Three weeks afterwards they again returned, but from that period entirely left her.

Her state of health, after this, was somewhat tolerable; now and then she was attacked with pains in the back and loins; sometimes she was seized with diarrhœa, accompanied with frequent tenesmus, more particularly after being costive.

The prolapsus vaginæ became habitual, but was much diminished in bulk; sometimes she could reduce it with her fingers, but observed, that it never continued up longer than a quarter of an hour at a time. Among the variety of means made use of as an external application, she found the greatest benefit from alum water.

In this deplorable situation she lived till February 2, 1789, being nearly forty-one years after her misfortune; at which time she died, at the advanced age of seventy-three.

"It was with the greatest difficulty," says Mr. Wilkinson, "that I obtained leave to open her body; but at length being allowed, I removed the whole contents of the pelvis as low as the anus and os externum. On examination of the parts, I found a communication between the rectum and vagina sufficient to admit my thumb to pass. The fore part of the vagina, the poste-

rior surface of the bladder, just below the opening of the ureters, as also the whole of the urethra, were gone, and the remaining part of the anterior surface of the vagina adhered across the os tinæ to the posterior surface; so that the os tinæ was wholly obliterated; and on introducing my finger into the vagina, it was conducted forward to the fundus of the bladder, which was pretty perfect.

"The left Fallopian tube had a tumor adhering to it about the size of a moderate golden pippin, and seemed full of fluid; but I did not open it *. The ovaries seemed quite sound, as well as the uterus; the rectum appeared diseased in its internal coat.

"From a review of the case, and further information obtained from the patient, there is great reason to suppose her labour was brought on prematurely.

"The too early rupture of the membranes not only prevented the gradual dilatation of the os uteri, and external parts, but, by lessening the bulk of the uterus, perhaps forced it too soon in contact with the pelvis and surrounding parts; hence, the order of nature being deranged, and the abdominal muscles prevented from co-operating with the action of the uterus by the over-dilatation of the bladder, the pains became not only irregular and less powerful, but the patient's strength was soon exhausted.—How far the early emptying of the bladder by the catheter might not have contributed to restore the contractile power of the uterus so as to have effected the delivery, I will not pretend to determine; yet certain it is, that most of the accidents which took place, particularly that of the laceration of the bladder, would have been prevented, and the delivery rendered much easier and safe.

"The succeeding inflammation, and large suppuration, which took place after the delivery, are not at all to be wondered at when every thing is properly considered. Hence it follows, that, in all those cases where the use of instruments seems necessary, great skill, as well as a careful attention to what may appear of the most trivial nature, ought never to be neglected.

"In a consequent point of view, the case I have related is indeed truly curious; the wonderful power in the constitution, by enabling this patient to support life to so great an age, under the pressure of such a train of accumulated injuries, seems not only astonishing, but affords us a convincing proof of the inexhaustible resources of nature.

"Although accidents of this nature are by no means uncommon—and what may not be expected from an unskilful use of instruments, or imprudent efforts to accomplish delivery?—yet I

* The parts are in Mr. Hunter's Museum.

believe there are few cases of this kind, whose catastrophes have been so lenient, or prolonged, or where a more ample field for examination and speculation has been afforded."

CHAP. VI. OF THE FORCIBLE DELIVERY OF THE PLACENTA.

WE have, in a former chapter, spoken in general terms of the necessary management of the after-birth in common, and even in difficult cases. The subject, however, is of extreme importance to accoucheurs, and one, indeed, on which they are far from unanimous. Dr. Denman's great experience entitles what he has written on it to peculiar attention, and on that account we shall extract, from the different sections of his excellent work on midwifery, such parts as appear to be most interesting.

"In the course of ten or twenty minutes," says the doctor "or a longer time, after the birth of the child, sooner or later, according to the condition of the patient at the time of her delivery, the action of the uterus returns for the purpose of expelling the placenta and membranes, which collectively have the common name of secundines, or after-birth. This action is indicated by pains, in all respects like those the patient had before the child was born, excepting their degree. When these pains come on, it is customary to take hold of the funis, by which, if we pull slightly, the evacuation of the placenta out of the uterus will be forwarded, without the risk of doing any kind of injury to the uterus. The placenta and membranes formed a complete lining to the uterus: but the placenta coming away first, and then the membranes, the whole is usually expelled in an inverted state; yet not always, as the separation of the placenta is in some cases so speedy, that it drops into the vagina, and pushes the membranes before it. But though the placenta is generally expelled in a short time after the birth of the child, and with the return of a few pains, it is sometimes retained on account, 1st. of the inaction of the uterus; or 2d. of the irregular action of the uterus; or 3d. of a scirrhus adhesion of the placenta to the uterus. It may be retained beyond the usual time, without any hemorrhage, but whenever there is a discharge of blood, the whole or a portion of it must have been previously separated; and the hemorrhage may continue or increase, or cease and return in these cases, till the placenta is extracted or expelled. Every discharge of blood at this time, properly speaking, is a hemorrhage; but to this term, together with the other parts of the definition, we annex the idea of such a loss of blood, as, by its continuance or degree, may be apprehended to occasion danger, which we are

ever to bear in mind; or on every slight discharge of blood, we might be led to make unnecessary attempts to extract the placenta.

"A very strenuous and long-continued exertion of all the powers of the constitution is often required for the expulsion of the child. These powers, though generally adequate to this effect, sometimes fail before it is accomplished. But experience having shewn that difficulties, to our apprehension insurmountable, are very frequently overcome by the natural efforts, both reason and humanity discourage all hasty determinations to pursue such measures as may affect the safety of the mother or the child. But as there is a leaven of imperfection in all human actions, animal as well as moral, we may sometimes be led by the most commendable motives to defer that assistance which any particular case may require so long, that after the birth of the child the patient may be in such an exhausted state, and the uterus so completely divested of all power of further action, that it is neither disposed nor able to separate or eject the placenta; and she is scarcely able to support the necessary consequences of her delivery. The mere debility of the patient is therefore often a powerful reason why we ought to wait, without making any attempts to hasten the separation or extraction of the placenta; as an immediate separation, natural or artificial, would render her still more exhausted and feeble, and greatly increase the danger arising from that debility which before existed. Sometimes also, when a labour has gone on with great activity, there is, for a considerable time, and from the moment of the expulsion of the child, even though the labour may not have been very fatiguing or slow, a total inaction of the uterus, for which no reason can be assigned. But if the time which passes between the birth of the child and the expulsion of the placenta be employed in composing the patient's mind, in cooling her when overheated, or in supplying her with proper cordials when much fatigued and wearied with the preceding circumstances, in short, in restoring her to her natural state, it generally happens, and we may reasonably expect the action of the uterus to return, and make its efforts to throw off the placenta in the usual manner, though more time may be required. But during this time of waiting for the action of the uterus to return, should a hemorrhage come on, we must apply ourselves to the use of those means by which the separation and exclusion of the placenta may be forwarded; there being (in a case of hemorrhage equally urgent) as justifiable a reason for the removal of the placenta, when that is retained, as there was for the extraction of the child. But every discharge of blood is not a sufficient reason for the introduction of the hand, or for the artificial extraction of the placenta, as some loss of blood most frequently precedes, and always accompanies, both its separation and exclusion. We must therefore

form a judgment of the necessity of extracting the placenta, by the opinion we entertain of the hemorrhage being so profuse as to endanger the life of the patient by its continuance or probable increase. Sometimes also coagula are discharged in considerable quantities, which, from their appearance, may be suspected to have been formed long before labour, by an effusion of blood into the ovum, from the rupture of some vessel which ran over the surface of the placenta; which coagula do not indicate any danger. It is not exactly in order, but it must nevertheless be observed in this place, that when I have been attending women, who were prone to violent hemorrhages after the birth of the child in former labours, I have made it a rule to keep them in an erect position, till the waters were discharged by the spontaneous breaking of the membranes, and the child was on the point of being born. By this method it appeared clearly to me, that the uterus acted more favourably, the placenta came away more naturally, and the quantity of blood lost was very much diminished.”—

What follows is more immediately to the purpose of the present chapter. The doctor says, “When the placenta is not separated or ejected in due time after the birth of the child, with or without a hemorrhage, means must be used for the purpose of its exclusion or extraction. If there be no hemorrhage, or none of importance, it is always better to wait than to interfere, because slight attempts to extract the placenta by pulling by the funis may be just sufficient, by loosening a portion of the placenta, to occasion or increase a hemorrhage, and not equal to the extraction of the placenta; and such conduct is a very frequent cause of a degree of hemorrhage, which may lay us under the necessity of introducing the hand into the uterus, in order to bring away the placenta, which operation might not otherwise have been required. But after a certain time, which is too indefinite a term if we were authorised to use one more precise, but certainly not within one hour after the birth of the child, unless we are compelled by hemorrhage or some untoward symptom, gentle means are to be used to favour its exclusion; and the most gentle must be first tried, as by giving and frequently repeating some actually warm and temperate cordial, which may renew the disposition in the uterus to act; by change of position, or by making a moderate pressure with the expanded hand upon the abdomen to aid the action of the uterus; or by pulling very moderately by the funis, to try whether it be disposed to come away. As the term moderate has no precise meaning, and what I call violent may by another be called moderate, we will say that so much force is, on no account, to be used in pulling by the funis, as to incur the risk of tearing it from the placenta, or of inverting the uterus: and that it is better to make it a general rule, to prefer the introduction of the hand into the ute-

rus, to separate and bring the placenta away, than to incur the hazard of either of those accidents. It is, however, to be observed, that when the hand is introduced for this purpose, there is not always a necessity of acting; for the very irritation thereby occasioned will often excite the uterus to its natural action, and the placenta be both separated and expelled, as will be recollected by every one accustomed to this operation. But the hand ought never, on any account, to be introduced into the uterus, except as a matter of necessity, and then with the utmost care and tenderness; and when introduced, should never be withdrawn, till the end for which it was introduced is, if possible, accomplished.

"In writings, and in conversations on this subject, the introduction of the hand, for the purpose of bringing away a retained placenta, is often mentioned as a slight thing; but I am persuaded, that every person who attends to the consequences of the practice will think it of importance, and that, if possible, it always ought to be avoided.

"To promote the separation and exclusion of the placenta, the application of the half-closed hand to the abdomen, so as to make a moderate pressure, is sometimes of use by aiding the uterus in its contraction; but this assistance cannot be given in the worst cases, that is, when the uterus is not at all contracted, or contracted irregularly. The respiration of the patient has also an evident effect upon the uterus and placenta, of which we shall be sensible, if we retain the funis in our hand, in the act of expiration, when it descends, and in the act of inspiration, when it is somewhat retracted. By supporting the funis with just so much force as will prevent its retraction in the act of inspiration, we shall soon be sensible that the funis is lengthened, which will prove that the placenta is descending; and the purpose of extracting the placenta will be completed, without the use of any other means; but this method requires much time and attention. Sometimes also the exclusion of a descending placenta may be favoured by pressing it, with one finger carried along the funis, towards the sacrum, in such a manner, as to bring down an edge instead of the whole mass; but this is not the case of which we are speaking.

"In all cases of dangerous hemorrhage, when the placenta is retained, it was said to be equally justifiable and necessary to extract the placenta, as it was to deliver the woman of her child under the same circumstances. But this general rule requires explanation, and some skill in the application. When there is a present hemorrhage, so important as by its violence or continuance to threaten danger, the placenta ought to be immediately extracted. This is not an opinion, but a rule of practice. But if there have already been a hemorrhage, so profuse as to occasion danger, and the common consequences of loss of blood, as fainting, and the like, have already followed;

the placenta ought not then to be extracted, nor the patient disturbed, nor any change made, till she is somewhat revived from her extreme debility; as the danger would be thereby increased, and the patient die, during or immediately after the operation, as I have seen and known in too many instances. In other words, the extraction of the placenta is to be considered as a remedy for a present or an apprehended dangerous hemorrhage, but cannot remove the effects of one which has already ceased.

"In cases also in which there is no hemorrhage, if the placenta be not ejected, or if none, or but very feeble efforts be made by the uterus for that purpose, a time will come, when we must determine upon its extraction, or leave it behind; and the latter being unsafe and unjustifiable, the mere retention will be sufficient authority for us to extract it. Upon this point there can be no dispute, except as to the time, and we will say, leaving the matter at large, for the exercise of individual judgment, that, if the placenta be not expelled at the end of four hours from the birth of the child, it is generally wise to determine upon extracting it; and the determination of choosing that time is, I believe, to be founded on the opinion, that the parts have not closed since the expulsion of the child. I can, however, recollect many examples of a retained placenta, without a hemorrhage, to which I have been called at any time within twelve or even twenty-four hours after the birth of the child, in which the placenta has been very easily managed, when the exigencies of any case required it."

In this place Dr. Denman thinks it necessary to make another distinction. "Though the placenta," says he, "may be retained for many hours after the birth of the child, if we be convinced of some degree of descent, especially if we can feel that part of it into which the funis is inserted, we have no occasion to be alarmed, or to hurry its exclusion, unless there be an existing hemorrhage. Then the placenta may be suffered to remain, till it is excluded by the action of the uterus, or as it descends, the most gentle assistance may be given, by pulling by the funis, to extract it; without any apprehension of danger, whether it be detained two, or even twenty-four hours, because we have at all times, under such circumstances, an easy and certain command of it."

In his tenth section, Dr. Denman speaks of the manner in which a forcible extraction of the placenta is to be accomplished.

"Whenever we have determined," says he, "upon the necessity and propriety of extracting the placenta by art, we must proceed in this manner. The patient being placed in a convenient position, as when we deliver with the forceps or vectis, and every thing in order, the funis, which is our guide, is to be held with a moderate degree of tightness. The external parts are usually in such a state, as not to require much dilatation; but

if this should be necessary, it must be done tenderly, and in the manner before directed with the right hand or left, as may be found most convenient; as must also the os or cervix of the uterus, should either be contracted. When the hand is in the vagina, the funis is to be slowly followed into the uterus, which though in a state of total inaction before, may then be irritated to a sufficient degree of action, to separate and expel the placenta, without any further assistance on our part. But if the spontaneous action of the uterus should not come on, we must proceed with the hand to the placenta, which may either adhere with its whole surface, or it may be partly, or even wholly, separated and lying loose in the cavity of the uterus. Should there be a total adhesion, we must search for the edge of the placenta, on the outside of the membranes, cautiously distinguishing between the placenta and the uterus. When the edge of the placenta is raised, the further separation must be made with the blunt ends of the fingers, and the closer and firmer the adhesion, the slower the separation ought to be made; not proceeding rashly, or affecting dexterity, but giving our heads time to guide our hands, as if the operation were performed under inspection. By slow proceeding, and by demurring a short time if we meet with more than ordinary difficulty, the separation will be perfected; or, when the greater portion is loosened, if we grasp it slightly in the hand, and bend it backwards, the remaining part will often peel from the uterus, without trouble; but this requires much caution. Should the placenta be found partly separated, we must proceed in the same manner. But whether on the introduction of the hand we found the placenta separated, or whether it was necessary to separate it, we are not to extract it immediately, but to wait till the uterus begins to contract, and then to withdraw the hand including the placenta, more quickly or slowly, according to the degree of contraction; for the hemorrhage may not be occasioned because the placenta was retained, but because its retention, or some other cause, hindered the contraction of the uterus. If there be no action of the uterus whatever, it is of service to throw the fingers gently backwards against the sides or fundus of the uterus, to irritate and bring on its action, previous to our withdrawing our hand. But when the uterus is perceived to act, then gently withdraw the hand, till the placenta is brought into the vagina. Whatever motive induced us to introduce the hand to separate the placenta, when it is brought into the vagina, it ought to be suffered to abide there, till the patient is composed, and recovered from her fatigue, and till the uterus has had time to contract in such a manner, as to prevent the return of the hemorrhage, at least in a dangerous way. For many years I have made it a rule to leave the placenta, naturally or artificially separated, to abide in the vagina one hour, after it was voided out of

the cavity of the uterus; and I am convinced by this method there is an infinitely less chance of an ensuing hemorrhage, on its coming or being brought away, and less after-pain. For the blood discharged in consequence of the separation of the placenta usually forms into coagula, which are collected in the membranes as in a net, and the uterus is left perfectly void of any thing, which can become the cause of any considerable pain.

“ With regard to those cases in which the placenta is retained by the irregular action of the uterus, there is generally some degree of hemorrhage, and often a very profuse one; though sometimes there is no discharge, or none of importance, only a retention of the placenta beyond the common time of its expulsion. When all the parts of the uterus act with equivalent force at the same time, the united action contributes to the expulsion of whatever may be contained in its cavity. But if one part, the inferior for instance, should act, when the other is at rest, a contrary effect might be produced. The forms, which the uterus may assume in consequence of this irregular action, are innumerable, but the most common is the longitudinal, which is produced when all the parts, except the fundus, act; or the hour-glass form, when the middle of the uterus only acts, by which it is divided as it were into two chambers or cavities. When it was the custom to bring away the placenta immediately after the birth of the child, three reasons were assigned for the practice; first, that it was a dead substance, without any power like that which was supposed to be inherent in the child; secondly, that it was an extraneous mass, which became pernicious every moment it remained; and, thirdly, that if not immediately extracted, it would be almost impossible to bring it away, the os uteri closing in such a manner, as absolutely to prevent the introduction of the hand for the purpose of extracting it. These opinions are proved to be groundless; for the placenta, we know, may remain many hours or several days without doing any mischief to the uterus; and the opinion of the os uteri closing so soon after the birth of the child is without foundation, as that seldom or never happens: what has been esteemed the natural closing of the os uteri being in reality an irregular contraction or spasm of some portion of the cervix, from which we are assured no harm, and little additional difficulty, can arise *.

* Scire enim est post natum infantem, in utero nullum reperiri tale os ut olim fuerat: sed ita omnino se res habet, ut in bursa mammae, quæ loribus transmissis contracta, rugosum os format; laxaris autem hinc visculis, ubique æque lata est et expansa. RUYSC. Advers. Anat. Dec. Secunda.

The tenth chapter of the second Decade is full of useful observations regarding the management of the placenta, given in very honest and animated language.

" When the uterus is contracted thus irregularly, as the placenta cannot be expelled, it must be extracted by art, whenever, on account of a hemorrhage, or of the time that is past since the birth of the child, it may be thought expedient or necessary. There is no way of judging of this kind or degree of contraction, unless by the uncertain information we may acquire by the application of the hand to the abdomen, till we introduce our hand into the uterus. Before this operation it is always proper to try whether the placenta may not be disposed to come away by any of the gentle means before recommended. On the failure of these, and being fully convinced of the necessity, the hand must be conducted in the manner before mentioned, till we come to that part which is partially contracted, whether it be at the cervix, or in the cavity of the uterus. The hand must then be reduced into a conical form, in the way directed for the dilatation of the os uteri, or external orifice. Should the spasm be in such a degree, as to make a perfect closure of the uterus round the funis, one finger must be first insinuated along the funis, and this being turned with a semirrotatory motion, will soon make room for a second, and so on, till all the fingers, in a conical form, may be admitted. The dilatation is sometimes to be made in opposition to a very firm contraction, yet it must be done steadily and resolutely, though not rashly or violently. Before the hand is passed beyond the contracted part, this must be amply dilated, otherwise it will clip round the wrist, and impede the subsequent part of the operation. When the contracted part is amply dilated, the hand must be carried forwards into what may be called the upper chamber of the uterus, in which the placenta is contained. Whether this be separated wholly or partially, or be yet adhering, we must proceed according to the method before mentioned. Immediately upon the separation of the placenta, the hand containing it is to be drawn out of the upper cavity, to that part of the uterus which was before so closely contracted, and held there, till, by the pressure behind, we are sensible of the action of the fundus. The hand containing the placenta is then to be withdrawn by slow degrees, till it arrives in the vagina, where the placenta may be suffered to remain for one or several hours; or we may wait till it is wholly expelled by the pains, in order to avoid the hazard of a subsequent hemorrhage.

" When the placenta is, either expelled by the action of the uterus, or extracted by art, it should be a general rule to apply the hand to the abdomen afterward, that we may be assured the uterus is not inverted; but this method is not always satisfactory, for in one case, though the volume of the uterus was felt, apparently contracting properly, the inverting uterus, as it receded, was mistaken for a regular contraction."

We are here apprised that the natural attachment of the pla-

centa to the uterus is of such a texture and kind, as very readily to admit of separation. But if that part of the uterus, to which the placenta adheres, should be in a scirrhus or morbid state, the placenta will partake of the disease. On the examination of the placenta of different women, there are not unfrequently found morbid appearances, some being disposed to a putrid, others to a scirrhus or catilaginous state; while in others there is a degree of ossification in the vessels, and sometimes perfect concretions. The adipose substance often found upon the placenta, in large quantities, is not of any importance. "The difficulty of the separation," says Dr. Denman, "will depend partly upon the placenta itself, and partly upon the state of the uterus. When there is found, on the introduction of the hand into the uterus, an uncommonly firm adhesion of the placenta, a perfect separation will be extremely difficult, and perhaps sometimes impossible, without the hazard of doing direct injury to the uterus. There is no security in these cases, but by taking time in the operation, confiding chiefly in slow proceeding, both for accomplishing our purpose, and avoiding mischief. It has been said, that it is more justifiable to leave a portion of the placenta behind, than to continue very strenuous efforts to bring the whole away, as these may give unbearable pain, and become the cause of immediate or subsequent injury. It must be acknowledged, that it is always a very desirable thing to bring away the placenta wholly and perfectly, not only for the satisfaction of friends, but for the real good and interest of the patient. Even the membranes should be managed with caution; for though a portion or the whole of these might be left without danger, they occasion a fetor in the discharges, and often so much pain as to create a suspicion of disease. But without meaning to give authority to negligence or misconduct, to rashness or violence, we may suppose a situation, in which we must submit to some evil, and in which all that is in our power is, to choose the least. There can then be no doubt, but that it is a less evil to leave a portion of the placenta behind, than to do any positive injury to the uterus, in striving to bring it away. For it has been found, when a portion of the placenta was left behind, that the hemorrhage has ceased and not returned, and that this portion far sooner decayed, or was more readily digested or expelled, than the whole. I once saw an instance of a whole placenta retained till the fifteenth day after the birth of the child, and then expelled with little signs of putrefaction, except upon the membranes; the whole surface, which had adhered, exhibiting marks of a fresh separation. The recovery of this patient was very fortunate, for I have seen several other cases of a similar kind terminate fatally. It is a conclusion generally made, though not always warranted, that, if a woman die with a portion of the placenta retained, her death

ought to be attributed to it; yet it should be considered, that there may have been previous disease in the uterus, and that the event may have been really occasioned by violent, though unsuccessful, attempts to bring it away, and not by the retention. Sometimes the danger of these cases is known to the practitioner only, who is obliged to act according to exigencies, for which he may not be particularly prepared; but if he have before acquired a just knowledge of the principles of the art, explain himself ingenuously, determine not rashly, and proceed slowly, he will not do any thing for which he can be justly blamed, and will generally be successful.

“The funis is commonly inserted about one third of its space from, or at the very edge of, the placenta, sometimes in the centre, and now and then the vessels branch off before it reaches the placenta; and the ease or difficulty, with which this may be brought away, somewhat depends upon the insertion of the funis. The chance also of tearing the funis away rests chiefly upon the force used to extract the placenta by it; yet if it be inserted fully into the placenta, and be in a sound state, the force which it can bear is infinitely greater than can be exerted without the hazard of inverting or doing other injury to the uterus. But if the funis be in a putrid state, or if the vessels branch off too soon, it may be torn away with a very small degree of force, as in the latter case it can only sustain what a single branch of the vessels can bear. Hence, in a cautious extraction of the placenta, we are sometimes sensible of a sudden yielding or jerk in the funis, which, if the same force be continued, will be repeated, till at length the funis comes unexpectedly away, and the placenta is left in the uterus, or in the vagina. Great circumspection and slow proceeding will usually prevent this accident; but if it should happen in our own practice, or we should be called to assist others, we must determine whether the case will allow of further waiting, or whether there be a necessity of bringing the placenta away immediately, by introducing the hand into the uterus. If there should be occasion, on account of hemorrhage or any other untoward circumstance, for the latter method, which, if consistent with the safety of the patient, ought always to be avoided, we may consider the inconveniences produced by the want of the funis, which, when it remains, serves as a guide to conduct the hand, and helps moreover to keep the uterus steady, and to bring down the placenta when separated. The former of these will not be of much consequence to a person accustomed to the operation; and the latter will be lessened, if an assistant make a judicious pressure upon the abdomen with both his hands. Some disadvantage will necessarily arise from this accident, we should therefore be careful to avoid it, when in our power; but though a little embarrassment may be occasioned, even when the placenta is in the vagina,

the importance of the disadvantages produced by the separation of the funis has, I believe, generally been overrated."

In the Medical and Physical Journal, Mr. Bartley writes on the delivery of the placenta, to which he is induced by the frequent disputes of practitioners on the subject. He states two cases which occurred to him in practice.

CASE I.—"On Sunday, April 10," says he, "I was called to Elizabeth Baker, of Westwood, a small village near this town, to attend in delivery. When I arrived, I found her standing with her back resting against the wall; and learned from the attendant women, on enquiry, that she had been in this erect position for some hours. Not being able to sit or even lie down without the greatest inconvenience, I concluded at the moment, from this information, that delivery was very near; I therefore placed her gently on the bed, and proceeded to examination. On attempting to introduce my fingers, I felt some resistance; and examining further, I found that the uterus and its contents were so far pressed into the vagina, that some part protruded a little through the os externum; a pain which immediately followed would have forcibly expelled, had not I made a considerable resistance with my hand. The os tincæ not being dilated to the compass of a shilling, I was convinced that delivery was for the present impracticable; I therefore attempted to return the uterus, and happily succeeded; and a copious evacuation of urine shortly supervened, which discharge had been suppressed nearly two days by the pressure on the meatus urinarius. I directed that she might be constantly kept in a horizontal position, and the bowels moderately open by occasional emollient clysters, an anodyne being now and then introduced. She thus continued a week without a recurrence of pain, prolapse of the uterus, or impediment in the alvine or urinary evacuations.

"On Monday the 25th, I was again called about one o'clock in the morning. On arriving, I found the child had been delivered, without assistance, about three quarters of an hour; that considerable hemorrhage had ensued, but had then ceased; and the placenta was not yet extracted. The woman being extremely weak, and considerably exhausted by the effusion of blood, I thought proper, as the hemorrhage had subsided, to wait some time before I attempted its extraction: but some slight pains recurring (which I hoped would effect its expulsion without difficulty), I made some efforts to bring it away, by gently drawing the funis; but in vain. On introducing my hand, I found a morbid adhesion had taken place near the fundus uteri. As the uterus had not much contracted, I desisted from further endeavours, considering the weakness of the patient, whose situation was rather perilous from recent exhaustion; her lips livid, pulse small, and her whole countenance pale and ghastly. I de-

terminated to leave its expulsion to the efforts of nature, and waited with patience about four hours, contenting myself with gently straining the funis at the recurrence of every pain. By this time the patient became very importunate in her request to have it taken away at all events, being extremely anxious to be put into bed; I therefore, in compliance, again introduced my hand, and removed several large clots of blood which obstructed its passage; then cautiously introducing my fingers round the whole substance of the placenta, between it and the uterus, I gradually detached and brought it away entire. Slight hemorrhage succeeded, and repeated faintings, which were so alarming that I began to wish I had persisted in my original resolution of trusting the operation to the efforts of nature, which I doubt not would have been sufficient, had I not acceded to her impatience. By administering cordial, tonic, and volatile draughts frequently, she soon recovered, and was, in the course of a fortnight, able to leave her room without material injury or inconvenience."

CASE II.—"The second case is of Elizabeth Munday, residing at Avonclift, near the town. I was called on to attend her in labour, May 16. The presentation of the child was natural, and nothing material occurred prior to the delivery, which happened soon after my arrival. I did not intend to proceed to the extraction of the placenta until Nature evinced, by her efforts for its expulsion, that my assistance was necessary. But about ten minutes after the birth of the child, a hemorrhage ensued, which in a short time became so profuse as to greatly endanger the life of my patient. I then judged it expedient to attempt its delivery without further delay. I took hold of the funis, which was of a texture uncommonly slight, and drew it in the gentlest manner; but unfortunately, notwithstanding I proceeded with the utmost caution, it separated at the placenta. Although such an accident was new to me, I did not suffer alarm to conquer my circumspection. I cautiously introduced my hand into the uterus; and, as in the preceding case, gradually detached the placenta, which I brought away entire. Hemorrhage still continued, and I became extremely apprehensive for my patient's safety; but happily, by the application of wet cloths, &c. and supporting her occasionally with cordials, I succeeded in removing every alarming symptom, and she is now tolerably strong and healthy."

The former of these cases may tend to exemplify, that the placenta may be retained with safety a much longer time than is generally admitted; and the latter, that although a forcible extraction is sometimes necessary from circumstances, it may be easily effected without thrusting the fingers into the substance of the placenta.

CHAP. VII. OF HYSTEROTOMY, OR THE CÆSAREAN OPERATION.

SECT. I. *Of the CIRCUMSTANCES under which HYSTEROTOMY is deemed justifiable.*

WHEN the delivery could not be accomplished by other means, or when a woman died suddenly with a living child in her womb, an operation to preserve the life of the mother and child in the former case, and to save the child in the latter, has been recommended, and successfully performed, by different authors, and in different ages.

This operation is of ancient date; it is the *sectio Cæsareæ* or *partus Cæsareus* of the Latins, and the *hysterotomia* of the Greeks. Whether it was ever successfully performed on the living subject amongst the ancients seems uncertain; but that it has been successfully practised by the moderns on various occasions, and in several different countries of Europe, there are so many authentic histories on record, that the fact will scarcely admit of doubt: but as this, like many other salutary institutions, has been much abused, and in many cases improperly and injudiciously employed (for some of those women who survived the operations were afterwards safely delivered of living children), the circumstances which render this operation necessary demand a very peculiar enquiry, viz:

1. A narrowness, or bad conformation of the bones of the pelvis.
2. Imperforated vagina, or contraction in the vagina, cicatrices, tumors, or callosities in the os uteri, &c.
3. The escape of the child through the uterus when torn.
4. Ventral conceptions.
5. Herniæ of the uterus.
6. The position or bulk of the child.

It will be necessary carefully to examine these different causes, in order to shew that they are by no means, in every case, sufficiently powerful motives for having recourse to it.

I. *Bad conformation of the bones of the pelvis.*—When the hand of the operator cannot be introduced within the pelvis, or, in other words, when its largest diameter does not exceed one inch and a half, this conformation is perhaps the only one which renders the Cæsarean operation absolutely necessary; happily, however, such a structure very seldom occurs in practice; and when it does, the accoucheur will readily discover it, by attending to the following circumstances, and to the common marks of a narrow pelvis. Wherever the capacity of the pelvis is so strait as not to admit any part of the child's head to enter, nor two fix-

gers of the accoucheur's hand to conduct the proper instruments to fear, break down, and extract the child piece-meal; in this case recourse must be had to the Cæsarean section; an expedient, though dreadful and hazardous, that will give the woman and child the only chance of life; and which, if timely and prudently conducted, notwithstanding the many instances wherein it has failed, may be performed with some probability of success.

It is true, the success of the operation in the city of Edinburgh, where it has been done five times, has proved discouraging, as none of the women had the good fortune to survive it many days. This, however, is not the fault of the operation, but is to be imputed to the low, weak state of the patients at the time, who had previously been several days in labour, and their strength greatly exhausted, before the operator was called. Delivery by every other means was utterly impracticable; the operation, though the event was doubtful, alone gave a chance of life; and three of the children by this means were extracted alive.

Mr. Hamilton, surgeon and professor of midwifery in Edinburgh, having been an eye-witness of the operation the last time it was performed there, gives the following account of the case which fell under his observation.

Elizabeth Clerk, aged 30, had been married for several years, became pregnant, and miscarried in the third month; the expulsion of the abortion occasioned so severe a stress, as actually to lacerate the perineum. Some time after her recovery, she was irregular, afterwards had one shew of the menses, again conceived, and the child, as she imagined, arrived at full time. She was attacked on Monday the 3d of January, 1774, about midnight, with labour pains, which went on slowly, gradually increasing till Saturday the 15th, when she was brought from the country to the Royal Infirmary here. Upon examination, the pelvis seemed considerably distorted; but the body was otherwise well shaped, though of small size; the os externum vaginae was entirely shut up, nor could any vestige of vagina be observed, nor any appearance of labia pudendorum: instead of this, there was a small aperture at the superior part of the vulva, immediately under the mons veneris, probably about the middle anterior part of the symphysis pubis. This aperture (which had a small process on the superior part, somewhat resembling the clitoris) was no larger than just to allow the introduction of a finger; the meatus urinarius lay concealed within it: a consultation of surgeons was called, and the Cæsarean section was determined on. Having had no stool nor voided any urine for two days, an injection was attempted to be thrown up; but it did not pass, nor was it possible to push the female catheter into the bladder. Mr. William Chalmers was the operator in this case. At six in the evening, he made an incision on the left side of the abdomen in

the ordinary way, through the integuments, till the peritonæum was exposed; two small arteries sprung, which were soon stopped by a slight compression; the wound was then continued through the peritonæum into the cavity of the abdomen, when the bladder appeared slightly inflated, much distended, reaching with its fundus nearly as far as the *scrobiculus cordis*: another unsuccessful attempt was made to pass the female catheter; at length a male catheter was procured, which was, after some difficulty, introduced into the bladder, and the urine evacuated to the quantity of above four pounds, high-smelled and fetid. This occasioned a necessary interruption for a few minutes, between making the opening into the abdomen and uterus; the bladder collapsing, the uterus, which before lay concealed, now came in view, through which an incision was made, and a stout male child was extracted alive; and immediately afterwards the secundines. The uterus contracted rapidly. After cleansing the wound, the lips were brought together by the quill-suture, and dressed superficially. The patient supported the operation with surprising courage and resolution; nor was there more than five or six ounces of blood lost on the occasion.

Being laid in bed, she complained of sickness, and had a slight fit of vomiting; but, by means of an anodyne, these symptoms soon abated: she was affected with universal coldness over her body, which also abated on the application of warm irons to the feet: she then became easy, and slept for four or five hours. Next morning, the 16th, about two o'clock, she complained of considerable pain in the opposite side, for which she was bled; and an injection was given, but without effect; for the pain increased, stretching from the right side to the *scrobiculus cordis*; nor did fomentations seem to relieve her; her pulse became frequent, she was hot, and complained of drought. At 7 A. M. the injection was repeated, but with no better success; and eight ounces more of blood were taken from the arm; a third injection still failed to evacuate any feces; the drought increased; and the pulse rose to 128 strokes in a minute. At 11 A. M. the pulse became fuller, and the respiration much oppressed. No stool nor urine passed since the operation. At 12 she was bled again, when the sickness appeared less than formerly. She now took a solution of sal. Glauber, manna, and cr. tart. at short intervals; she vomited a little after the last dose, had a soft stool, and voided a small quantity of urine. At 3 P. M. her pulse was 136, and she had another stool, when thin feces were evacuated; she was then ordered two spoonfuls of a cordial anodyne mixture every second hour; the vomiting now abated; the pulse became smaller and more frequent; she passed urine freely; but the pain and oppressed breathing increased. At 7 P. M. her pulse rose to 140, and became weak and fluttering; she called for bread, and fresh

lowed a little with difficulty; her drought was intense; the dyspnœa still increased. She was now much oppressed, and began to toss; the pulse sunk and became imperceptible; she complained of faintishness, but on belching wind her breathing was relieved, and the pulse returned, growing fuller and stronger: the pain of the side still increasing, twelve ounces of blood, very fizy, were taken away; and two clysters of warm water with oil were injected without effect. At 8 P. M. the pulse became less frequent and smaller; she complained much of the pain towards the scrobiculus cordis; her breathing was much oppressed; her belly was tense, and swelled as big as before the operation; her pulse was now small and feeble; she looked ghastly; and expired a little after eight, twenty-six hours after the operation.

It is to be regretted that the relations would not permit the body to be opened.

Since the first certain accounts of the operation successfully practised by a low-gelder on his own wife, in the beginning of the sixteenth century, there are on record above seventy well-attested histories, wherein it has been successfully performed: for, of all the cases related by authors, it has not proved fatal to the patient above once in ten or nine instances; which evidently shews the propriety of the practice, and probability of success, both in regard to the mother's own recovery, and for certainly preserving the life of the child. But it should never be attempted, excepting in those cases only where it is absolutely impossible to deliver the woman by any other means whatever; for there are pelvises to be met with, where, without having recourse to this operation, both mother and child must inevitably perish: such have occurred to many practitioners, who, from want of resolution or from ill-founded prejudice, have allowed their patients to perish from neglect, contrary to a well-known maxim in physic, That, in a desperate case, it is better to employ a doubtful and even desperate remedy, than to abandon the patient to certain and utter ruin. Such, for instance, is a case related by Saviard, of a girl aged 27, whose stature was only three feet, who came to lie-in at Paris, in the *Hotel Dieu*; every method but the operation was in vain attempted; both mother and child died. Mauriceau also relates the history of a woman who was left to die, where the aperture of the pelvis was so small as not to admit the hand of the accoucheur. And, not to multiply instances, Mr. De la Roche gives a case where the woman had been seven days in labour: the child was saved by the operation; but the woman died the fifth day after, probably from its being too long delayed: the distance, in this subject, from the lower vertebra lumborum and os pubis, was no more than two fingers' breadth. The operation, when the necessity is evident, ought therefore to be early performed, that the patient, who from her make and constitution

is generally delicate and puny, may have every chance of recovery in her favour, without being exhausted by the fruitless efforts of a tedious and painful labour, as too often has been the case. On these occasions, the prudent accoucheur should call in the advice of his elder brethren of the profession, and, by his cautious and prudent conduct, avoid every cause of censure or reproach.

Exostoses from the bones of the pelvis is a species of deformity very rarely met with in practice, and which seldom or never takes place to such a degree as to render this operation necessary.

II. *Constriction, callosity, tumors, &c.* about the vagina or os tincæ. —The vagina and os tincæ are often affected with constrictions from cicatrices, with callosities and tumors; but it is seldom, if ever, necessary to perform the Cæsarean section on this account. Tumors in the vagina may generally be removed with safety, even after the commencement of labour, and delivery happily succeed; or it may be sometimes practicable for the accoucheur to pass his hand by the side of the tumor, to turn the child, and deliver. With regard to constrictions in the vagina, and callosities in the os uteri, there are many instances where, at the commencement of labour, it was impossible to introduce a finger into the vagina; yet the parts have dilated as labour increased, and the delivery terminated happily. At other times, the dilatation has begun during pregnancy, and been completed before delivery. There is a history, for instance, in the *Mém. de l'Acad. des Scienc.* 1712, of a woman whose vagina was no larger than to admit a common writing quill; she had been married at sixteen, and conceived eleven years after: towards the fifth month of her pregnancy, the vagina began to dilate, and continued to do so till full time, when she was safely delivered. Guilemeau dilated, and La Mott extirpated, callosities in the vagina and os tincæ, when the children were successfully expelled by the force of natural labour.

Harvey relates a case where the whole vagina was grown together with cicatrices; nature, after a tedious labour, made the dilatation, and a large child was born.

La Mott mentions his having delivered three women, who had not the smallest vestige of an orifice through the vagina to the uterus. Dr. Simpson cut through a callosity of an os uteri which was half an inch thick, &c.

Upon the whole, tumors in the vagina, or about the orificium uteri, may be safely extirpated without danger of hemorrhagy or other fatal symptoms, and the delivery will happily succeed; and if the vagina be impervious, the os externum shut up, or the labia grown together, the parts should be opened with the scalpel, rather than risk an operation, at best in the issue doubtful and precarious: an operation never allowable in such cases, and therefore universally improper in diseases or malconformation of the soft parts of generation. If the os externum be entirely closed,

if the cavity of the vagina be entirely filled up, or the passage considerably obstructed by tumors, callosity, or constriction from cicatrice, and there is no reason to suspect a fault in the pelvis, of which a judgment may be formed by the common marks of deformity, under size, or a ricketty habit, it is by much the best practice to open a passage through the vagina, and deliver the woman in the ordinary way. If there be no defect in the pelvis, the head of the child, or any other bulky part that presents, will advance in this direction, till it meets with resistance in the soft parts: thus the teguments will at length be protruded before the child's head, in form of a tumor, when a simple incision downwards to the perinæum, in the direction of the anus, will remove the cause of difficulty, by relieving the head; the child will afterwards safely pass, and the wound will heal without any bad-consequence.

The state of the pelvis, and progress of the labour in these cases, may often be learned by the touch of the finger in ano.

III. *Lacerated uterus* is another cause for which this operation has been recommended.—The uterus may be ruptured from violence in making the delivery; or such an accident may happen naturally, either from the cross presentation of the child in time of pregnancy, or in time of labour, when the pelvis is narrow: these cases are generally fatal; and it is very seldom, if ever, that the life of the mother can be saved by the Cæsarean section, after the fœtus escapes through the torn uterus into the cavity of the abdomen; because it often happens, that inflammation and sphacelus has affected the parts of the uterus that sustained the pressure previous to the rupture; or, if otherwise, convulsions or other fatal symptoms soon ensue, from the quantity of blood, waters, &c. poured into the cavity of the abdomen.

When the child cannot be extracted by the natural passages, tremors, singultus, cold sweats, syncope, and the death of the mother, for the most part, so quickly follow, that it will at least seem doubtful, to a prudent, humane practitioner, how far it would be advisable, after so dreadful an accident, the woman apparently in the agonies of death, rashly to perform another dangerous operation, even with a view to preserve the child, till he had waited till the mother either recruits or expires.

If part of the child be contained within the uterus, and the feet can be reached, the practice is to deliver by the orifice of the womb; but when the whole fœtus has escaped entirely without the uterus, the Cæsarean operation is recommended as the only means of preserving both mother and child.

If the operation on this occasion be ever allowable, it may be asked,

1. At what time must it be performed?
2. Would it not have the appearance of inhumanity to have

recourse to this expedient immediately after the uterus bursts, when the woman is seemingly ready to expire, although it be the only time when there is a chance of saving the child?

3. In most cases where this accident happens, should the Cæsarean section be made, is it not highly improbable that the mother will survive so terrible a laceration?

4. For if it be done with a view to save the mother, in what manner is the extravasated blood, &c. to be evacuated from the cavity of the abdomen?

What seems to make cases of this kind unfavourable, when the accident happens in time of labour, is,

1^{mo}, That here the parts, before rupture, in most cases, are in a gangrenous state.

2^{do}, As the rupture is commonly towards the cervix, there is generally a much greater hemorrhagy, by reason of the flow contraction of the uterus at that place.

3^{do}, The uncertainty whether, or how long, the patient will survive it, seems also a considerable obstacle to the operation under such disagreeable circumstances, *Ne occidisse videatur, quem spes interemit.*

IV. *Ventral conceptions* is the fourth indication for this operation. — These are either in the ovaria, tubes, or cavity of the abdomen, and seldom arrive at great size; or are retained, very often a long time, without occasioning much complaint. The issue of these conceptions has also been no less various than extraordinary; for after being retained for a great many years in an indolent state, at length abscesses or ulcerations have formed, and they have been discharged through all the different parts of the abdomen.

Most women feel pain and violent motion at the time of ordinary delivery in these cases of ventral conception; if, therefore, the operation be ever necessary, now is the proper time to perform it. But in general, as the separation of extra-uterine foetuses from their involucri may occasion immediate death in many cases, from the vast hemorrhagy that might ensue from the non-contraction of the parts to which they adhere; unless they point outwardly, or excite the most violent symptoms, they ought universally to be left to nature.

V. *Hernia of the uterus* is seldom or never sufficient to induce us to perform the Cæsarean section, as the uterus is very rarely influenced in such a manner, that the orifice cannot be reached, and the delivery successfully made. Many instances are to be found among surgical authors, where deliveries, under such circumstances, have been happily performed, without having recourse to so hazardous an expedient. Thus Mauriceau mentions a case, where the uterus, in a ventral hernia, was pushed along with the intestines above the belly, and contained in a tumor of a

prodigious size; the woman, however, was delivered at the end of her time in the ordinary way. La Mott relates the history of a woman in a preternatural labour, whose uterus and child hung down pendulous to the middle of her thigh, but whom, notwithstanding, he safely delivered: and Ruysch gives a case where the midwife reduced the hernia before delivery; although it was prolapsed as far as the knee, the delivery was safely performed, and the woman had a good recovery.

VI. *The position or bulk of the child.*

Since the practice of turning the child and delivering by the feet, and the late improvement of obstetrical instruments, this operation is never to be performed, on account of position, monstrosity, or any other obstacle on the part of the child.

Upon the whole, when the pelvis is faulty to such a degree, that no instrument can be conducted to tear and extract the child, this perhaps is the only case wherein this operation should be performed on the living subject. Incisions through the teguments of the abdomen, to extract extra-uterine fœtuses, or bones of fœtuses, do not properly fall under the name of *Cæsarean section*, as that name implies incision of the uterus also.

When a woman advanced in pregnancy dies suddenly, either by accident or by natural disease, the Cæsarean section is recommended as an expedient to preserve the life of the child. This is a very proper measure, provided the death of the mother be ascertained; but sometimes it is a very nice and difficult point to distinguish between a deliquium and death; and therefore the accoucheur on such an occasion must act with the utmost circumspection. If the operation be delayed but a very short while after the mother expires, it will probably be in vain to make the attempt; for, whatever fabulous stories may be related to, the contrary, there are few authentic cases of the fœtus of any animal surviving the mother, perhaps an hour; and therefore every thing should be in readiness to extract the child with all possible expedition, after the event of the mother's death. But, in such cases, the agonies of death often perform the part of labour, and the child is sometimes thrown off *in articulo mortis*; or the os uteri is so much dilated, that there is easy access to pass the hand, turn the child, and deliver. Thus one should be very cautious in having recourse to this operation, even in the above circumstances; which should never be done,

1. Till the death of the mother be ascertained beyond doubt;
 2. Till the state of the os uteri be examined;
 3. Till the consent of the relations be obtained; And,
- Lastly, It need not be undertaken, except where the mother dies suddenly, between the 7th and 9th month.

It is unnecessary where the disease has been lingering; in such cases the child commonly dies before the mother.

When it is doubtful whether the child be alive or not, it may be

determined by applying the hand on the abdomen of the mother about the time of, and for a little while after, her death, when the life of the child will be discovered by its motions and struggling.

Thus having pointed out the different causes that determine this operation, it may be observed, that it is a frightful and hazardous one; and although performed successfully in a number of cases, yet, in many others, it has failed, and the woman has died either immediately or soon after. It should never, therefore, be undertaken but on extraordinary and desperate occasions; and then it is not only advisable, but incumbent, on every practitioner to whom such cases occur.

To conclude, it may not be improper to give a few directions with regard to the method of performing the operation on the living subject.

Having emptied the bladder, and evacuated the contents of the intestines with repeated emollient glysters, the patient being encouraged, with proper cordials, and every other requisite in readiness, she must be placed on a table or bed, with her left side gently raised with pillows or bolsters, and properly secured by assistants. An incision must be made with a common convex scalpel, beginning rather below the navel at the middle space between it and the spine of the os ilium, carrying it obliquely forwards towards this bone, so that the wound in length may exceed six inches. This external wound is to be carried through the common teguments of the abdomen till the peritonæum is exposed, when the operator should rest a little, till the hemorrhagy be entirely abated. He must then, with great caution, make a small opening through this membrane, introduce his finger, and upon this a scalpel (which is preferable to scissars), and with great expedition make a complete dilatation; he must now wipe away the blood with a sponge, press the omentum or intestines gently to a side, if in the way, and endeavour to discover to what part of the uterus the placenta adheres, that it may be avoided in making the incision. This may easily be known by a thickness and solidity in the part, which distinguish it from the rest of the uterus; it is still more easily discovered when the membranes are entire. The blood-vessels are less in number, and smallest in the middle and anterior part of the uterus, which therefore, if the placenta does not interfere, is the proper place for making the incision, which must be performed with the utmost attention, lest the child should be wounded: if the membranes are entire, more freedom may be used, and *vice versa*. The direction and length of the wound of the uterus must be the same with the external one. The child must now be quickly extracted, and the placenta carefully separated: these must be given to an assistant, who will divide the chord, and take care of the child, as the operator's attention must be wholly bestowed on the mother. The coagulated blood, &c. being removed by a sponge wrung out

of warm water (lest the uterus or intestines be protruded, which are very troublesome to reduce), the lips of the external wound must be quickly brought together, and retained by an assistant till secured by a few stitches; generally three will be sufficient: as many needles should be ready threaded with pretty large broad ligatures; the middle stitch ought to be made first; the needle should be introduced at a proper distance, *i. e.* about an inch and one fourth from the side of the wound, carrying it first from without inwards, and then from within outwards, securing, with a double slip knot, to be ready to untie, lest violent tension or inflammation should ensue; under the knot a soft compress of lint, charpie, or rolled plaster, should be applied, and the whole dressings must be secured by a proper compress and bandage. The patient must be afterwards treated in the same manner as after lithotomy, or any other capital operation.

Quæritur, To what cause is the unsuccessful event of this operation to be imputed? When the operation proves fatal, to what immediate cause are we to ascribe the death of the patient? Is it nervous, or uterine irritation, from cutting, that kills? Is it internal hemorrhagy, or the extravasation of fluids into the cavity of the abdomen? Or are not the fatal consequences rather to be imputed to the access of the air on the irritable viscera? This can only therefore be prevented by exposing these parts for as short a space of time as possible. Dr. Monro, the present anatomical professor at Edinburgh, in making experiments on young small animals, such as bitches, cats, frogs, &c. by opening the cavity of the abdomen, and tying the biliary ducts, remarks, that though a large opening into the abdomen be made by incision, if the wound be quickly closed and stitched, the animal will recover, and no bad consequences follow; but if exposed a few minutes to the air, dreadful pain soon comes on, which the creature expresses by the severest agonies; convulsions at last ensue, and death within four or six hours after the operation. On opening the abdomen after death, the whole viscera are found to be in an inflamed state, and universally adhering to one another. He has often repeated the experiment, and the same appearances as often take place.

May not the analogy here justly apply to the human subject? And, in performing the Cæsarean operation, should we not be very careful that the viscera be exposed as little as possible, and that the wound be covered with the utmost possible expedition?

SECT. H. *CASES in which HYSTEROTOMY has been performed,*

Besides the case cited in the foregoing section, Dr. Smellie records the following instances of the Cæsarian section performed on the dead, as well as on the living subject.

CASE I.—This was a case of flooding in which the woman died suddenly, and was opened immediately, in order to save the child.

"I was called," says the doctor, "by a midwife, to a woman who was attacked with a violent flooding; but she being unwilling that I should examine, and the discharge being stopped before I reached the house, I ordered a mixture of the *Tinctura Rosarum*, and laudanum, to be given as there should be occasion; and desired them to send if it should again return.

"She was within a fortnight of her full time; the discharge was sudden, in a large quantity, and soon stopped; she continued free all that day, till towards the evening; the flooding continued all night; and I was not called till next morning, when I found her excessively weak and low. Although she had no signs of labour, yet the os uteri was soft, and a little open, and something like either a coagulum of blood, or the placenta, presenting. Before I had time to put her in a position for the delivery, she fainted away, was thrown into convulsions, and died instantly. As there were none but the husband and nurse present, I immediately sent for an apothecary, who lived next door. All the by-standers being fully convinced of her death, I made a large opening into the abdomen, with a view to save the child. Though the woman was pretty fat, yet the parietes of the abdomen were thinner than I expected; from the large extension of the uterus. I then made a large opening in the uterus also, which was not a quarter of an inch thick. A large quantity of waters was immediately discharged into basins, in all about two quarts. I then extracted the child, which was large and plump, but had no signs of life, and seemed to have been dead several hours, by the stiffness of the joints. I now leisurely examined the uterus and secundines. The uterus and the woman's body seemed to be quite destitute of blood; for scarcely one drop appeared on opening the parts. I separated the membranes slowly, which adhered to the inside of the uterus. In this operation, I perceived little small filaments, like hairs, that were extended; and, in separating, some shrunk into the uterus, and some to the membranes. I found the placenta adhering to the lower part and left side of the uterus, and about three fingers' breadth of it lying over the os uteri. I then also separated the placenta, and found filaments about the size of hogs' bristles, shrinking in as the former. All this part of the placenta looked florid, but that which was disengaged, and over the os uteri appeared livid, and split in the middle, which probably was the occasion of the child's death, by allowing the blood to be discharged from the placenta. The woman had easy labours in her former children. The os uteri was thin, soft, and open to the breadth of half a crown. I dilated it with ease, which shewed that, if I had been sent for in the evening, she might have been safely delivered. The head presented; but in the hurry I did not then observe the position of the body."

CASE II.—In this case the uterus was opened, and every thing appeared much in the same manner as the former. The woman was turned of forty, of a gross habit, and had never borne a child.

In the seventh month of her pregnancy she received a fall, that brought on a large discharge, which, however, by proper management, was soon restrained, though it commonly returned on the least motion or exercise.

"About the middle of the eighth month," says Dr. Smellie, "I was called, when it had returned in larger quantity than before; but it diminished by degrees, and soon stopped altogether. What seemed to me most necessary at that juncture, was to keep up her strength by a nutritive diet, consisting of the lightest kind of food. But being apprehensive of danger from her great weakness, I advised the husband to call in a physician, who approved of what had been done, and ordered the same regimen to be continued. After this she went on tolerably well, having now and then some small returns, though not so much as to require any other method; for the delivery could not have been attempted with any probability of success, even although the discharge had been in greater quantity, the os internum being close shut, and extremely rigid. Two or three weeks before her full time, she was taken with slight pains, upon which I was called, and found the os internum opened about the breadth of a sixpence, and within it a soft substance, that felt like the placenta, or coagulated blood. As she had rested but indifferently the preceding night, was faint and weak, and had some small returns of the discharge, I desired a consultation with another of the profession, and the family being strangers in England, mentioned some of the most eminent in my own way. Dr. Sands was sent for, and he gave it as his opinion, that it was still proper to support her strength by broths and nourishing food, and more safe to wait until the slight pains should bring on the right labour, than to use any violence to deliver her immediately. I was again called about nine o'clock the same night, when she was taken all of a sudden with frequent faintings, in one of which she expired, as I entered the room. This sudden alteration prevented me from making any attempt, and indeed, had not this event happened, I should have been afraid of her dying in the operation, because of her gross and weak habit of body. Cases of this kind require the utmost prudence and caution. I have saved many women and children by immediate delivery, when the patients were not very low and weak, or worn out with frequent losses of blood, and when the discharge happened all of a sudden, in a good constitution, the parts being open, soft, and used to extension by a former birth; but when the constitution is gross, the parts rigid, and the patient weakened by interrupted floodings, I have always practised the foregoing method, which has often been attended with success.

"As soon as all present were satisfied that this person was dead, I opened her abdomen, and having taken out the child, examined the uterus. I found the placenta firmly adhering to its inferior and posterior parts; about two fingers' breadth of its lower edge

was separated from the os internum, which it covered; and this was what Dr. Sands and I had felt in the morning. Having extracted the secundines, I tried with my hand to open the os internum from the inside of the uterus, which with great force I performed, not without rearing it about two inches on one side. By this it appears how difficult it is to dilate this part in women going of a first child, especially when they are pretty old. Indeed it is sometimes impossible to be done before they come to their full time, and even then, not until the parts are thin, soft, and largely opened by previous labours."

CASE III.—In this case there was a flooding. The patient died, and the Cæsarian operation was performed immediately after. The woman was above eight months gone with her fourth or fifth child. She had got up, and fatigued herself pretty much in the morning, in consequence of which she was seized with pains in the back. She tried to make water, and all of a sudden was taken with a violent flooding, which almost filled the chamber-pot.

"Her midwife," says Dr. Smellie, "being sent for, desired they would call me immediately. When I came, the flooding was stayed. I endeavoured to examine, but could not reach the os uteri, on account of her shivering. As she was easier, and not much weakened, they would not allow me to persist in my endeavours. I told her friends the danger to which she would be exposed, if the flooding returned with violence; and exhorted them in that case to send for me immediately. In the mean time, as her pulse was full, I ordered ten ounces of blood to be taken from her arm, directing her to keep in bed, and take frequently two spoonfuls of the following mixture :

(No. 16.) \mathcal{R} . Infus. rosæ rubr. \mathfrak{z} v.

Acid. vitrioli. dilut. gutt. x.

Syr. papav alb. \mathfrak{z} i. misce.

"Also that a linen rag, dipped in the following decoction, should be put up the vagina :

(No. 17.) \mathcal{R} . Cort. granator.

Flor. balaustior.

Flor. rosar. rubr. aa \mathfrak{z} i.

Coque in aq. font. q. s. ad \mathfrak{z} iv. colaturæ, adde.

Alum. rup. \mathfrak{z} ss.

Vin. rubr. \mathfrak{z} ii. misce.

"She was again attacked with the flooding about eleven at night, and sent for the midwife; and though she was not at home, they delayed calling me till about six in the morning. I felt her pulse, which I could scarcely distinguish: her extremities were cold; a cold sweat had spread all over her face and breasts; and she could scarcely speak. I immediately ordered her a cordial julep with tinctur. castor. and sp. salis ammoniac. and in the

mean time gave her some warm red wine. Her vessels were so much emptied, that the flooding was serous and much abated. I ordered ligatures above the knees and elbows, and warm cloths and bricks to be applied to her feet and hands. All these steps were taken in order to recover her strength and spirits before I attempted to deliver; but before my directions could be put in practice she was taken with a violent convulsion, and expired immediately. I then proposed to try to save the child, if alive, by performing the Cæsarian operation; a proposal to which they agreed. In order to prevent reflections, and ascertain that the woman was really dead, I sent for the apothecary, and immediately opened the abdomen and uterus. Then I extracted the child, but felt no pulsation in the arteries of the funis umbilicalis; neither was there any pulsation felt at the heart. I rubbed the child's head with spirits, flapped the nates, and shook the body to give pain and make it shrink. A nifus of this kind, operating on the nerves, sometimes stimulates the heart to contraction, and affords an easy admission of the air, to rush into the lungs. I then tried to inflate the lungs by blowing in at the child's mouth; but all these efforts were to no purpose, though made in less than four minutes after the mother expired. The child was plump and full grown; the scrotum and lips were not livid; but the joints were a little rigid, a circumstance which denoted that it had been dead some hours.

"I now examined more narrowly the following particulars: On opening the woman I found the parietes of the abdomen thin and tense from the stretching of the uterus. I made the incision with an armed lancet, which was the instrument easiest procured, from the navel along the linea alba, to the ossa pubis, through the integuments and peritoneum. The uterus, which was fully distended with the waters, appeared through the openings, and stretched the lips several inches from each other. I then opened the uterus, which was about three eighths of an inch thick; there seemed to be about three or four pints of water contained in the membranes. When I came to examine the adhesion of the membranes and placenta, I found the membranes adhering everywhere to the uterus; and on separating them slowly, observed every-where little small filaments like hairs extended from the one to the other. The placenta adhered to the back, and lower part of the uterus. I introduced my finger up the vagina to the os uteri, which was opened about half an inch, and found the lower edge of the placenta covering it on the inside, adhering all round it, and also firmly adhering all along the lower and back part of the uterus. This I separated slowly from the uterus; and here likewise appeared filaments rising from the one to the other, as in the membranes; but as large as hogs' bristles. But there was a greater roughness or inequality, resembling small indentations in

that part of the uterus, and not so smooth as where the membranes adhered. There was no red blood in the vessels to be seen, because the body was quite exhausted. Where the uterus was opened, there appeared the mouths of a great number of vessels, some of them half an inch in diameter. The flooding seemed to proceed from the position of the placenta over the os uteri, which always happens when the placenta presents first: The head of the child was turned down to the os internum."

It is here observed that Monsieur Lamotte, in book iv. chap. 2. mentions some cases from other authors, and gives several himself, in which the passage to the uterus was shut up by callosities. But he opened, and made way for the birth of the children, without being obliged to perform the Cæsarean operation.

CASE IV.—This appears in the *Edinburgh Medical Essays*, vol. v. art. 37. An instance of the Cæsarean operation, performed, with success, by a midwife, is described by Mr. Duncan Stewart, surgeon in Dungannon, in the county of Tyrone, in Ireland.

"The histories of the Cæsarean operation," says Mr. Stewart, "being so few, I send you the following. Alice O'Neal, aged about thirty-three years, wife to a poor farmer near Charlemont, and mother to several children, in January, 1738-9, was taken in labour, but could not be delivered of her child by several women who attempted it. She remained in this condition twelve days; the child was thought to be dead after the third day. Mary Donnelly, an illiterate woman, but eminent among the common people for extracting dead births, being then called, tried also to deliver her in the common way: and her attempts not succeeding, performed the Cæsarean operation, by cutting with a razor first the containing parts of the abdomen, and then the uterus; at the aperture of which she took out the child and secundines. The upper part of the incision was an inch higher, and to one side of the navel, and was continued downwards, in the middle betwixt the right os ilium and the linea alba. She held the lips of the wound together with her hand till one went a mile, and returned with silk and the common needles which tailors use. With these she joined the lips in the manner of the stitch employed ordinarily for the harelip; and dressed the wound with whites of eggs, as she told me some days after, when, led by curiosity, I visited the poor woman who had undergone the operation. The cure was completed with salves of the midwife's own compounding.

"In about twenty-seven days, the patient was able to walk a mile on foot, and came to me in a farmer's house, where she shewed me the wound covered with a cicatrice; but she complained of her belly hanging outwards on the right side, where I observed a tumor as large as a child's head: and she was distressed with a fluor albus, for which I gave her some medicines, and

advised her to drink decoctions of the vulnerary plants, and to support the side of her belly with a bandage. The patient has enjoyed very good health ever since, manages her family affairs, and has frequently walked to market in this town, which is six miles distance from her own house."

CASE V.—The following is from Dr. King in the same volume, article 38. "There is another woman lying within five miles of this place, from whom a midwife took a child by the Cæsa-rean operation near two years ago; I saw the poor woman soon after, and drew out the needles which the midwife had left to keep the lips of the wound together. I perceived the muscles contracted into a lump at the lower part of the belly, which increased, and at last broke and ran considerably. This woman is capable of doing something for her family, with the assistance of a large bandage, which keeps in her intestines. This child, which I saw, was not extra-uterine; for several beside the midwife assured me, that a leg of it presented itself to view in the vagina before the operation."

CASE VI.—This was a case of the Cæsa-rean operation, performed by Mr. Smith, surgeon, in Edinburgh. It was communicated to Dr. Smellie, and inclosed with the following remarks by Dr. Austen.

"The only remarkable circumstance in it," says the doctor, "is, that the impregnated uterus may be cut without any considerable hemorrhage; but it is such a dangerous operation, that it ought never to be performed, if there is the least probability of bringing away the child in any shape. I was present when Mr. Smith performed the operation, and recollect the sudden contraction of the uterus, which I suppose prevented the hemorrhage."

Mr. Smith relates the particulars in the following words:

"I was sent for," says he, "to — Paterfon, a drummer's wife, in the Canongate, about ten at night, who had been in labour for six days. She was one of the least women I ever saw, and prodigiously deformed.

"I touched her, and found something in the vagina so large, that I at first took it for the head of the child; but soon found I was mistaken, for, examining more attentively, I found towards the ossa pubis the os uteri, thick, high, and a very little dilated, and through it I felt distinctly the child's head. What I at first took for it proved to be the os coccygis of a very extraordinary size and shape, turned inwards quite across the vagina, and reaching almost to the fore part of it. About an inch and a half, or two inches, above the extremity of the os coccygis, I felt the ossa pubis, not forming a convexity outwards, as they do in a natural state; but were depressed inwards, so that I could scarce get up two fingers betwixt this monstrous os coccygis and the ossa pubis. The woman being much fatigued with pains and want of sleep, I ordered an opium pill to procure rest.

"I visited her next morning, and found she had slept some hours; but after she awaked she had had violent pains. Upon touching, I found the os uteri a little more dilated, so that I could feel about the breadth of half a crown of the child's head. The constriction of the parts was such, that it was impossible to deliver her in any shape; I therefore endeavoured with all my strength to press downwards and backwards the os coccygis; but in vain. I then told the women that were about her, that it was impossible to deliver her: they begged of me to try any method, however desperate. One of them proposed a crotchet; but the passage between the bones of the pelvis was so narrow and so crooked, that it seemed to me absolutely impossible to bring away a child in any shape through them. I promised to pay another visit soon, and to bring some of my brethren along with me, and to give her all the assistance we could.

"Accordingly several of my brethren visited my patient along with me, and they were unanimously of opinion that the child could never be brought through the vagina, and that the only chance she had for life, and even that a very small one, was to undergo the Cæsaean section. This was told the woman and her friends; and, to prevent any reflections afterwards, we repeated, in the strongest terms, the great danger the woman would run in the operation, and that possibly she might die in our hands; but they were resolved to run all risks."

Accordingly ten at night was appointed for the operation, and many gentlemen of the faculty were present, and, among others, Dr. Monro, professor of anatomy.

The instruments and dressings provided were as follow: 1, a common scalpel; 2, a pair of crooked scissors; 3, two needles threaded; 4, four large needles threaded for the gastroraphia; 5, scraped lint; 6, a large compress, napkin and scapulary; 7, ink; 8, a cordial to be given during the operation.

"The patient was laid on her back on a table covered with blankets, with a pillow below her head. Her body being secured, I seated myself at her right side. I drew a line with ink about six inches in length, parallel to the linea alba, and four inches distant from it, in order to avoid cutting the musculus rectus. I then with a convex scalpel made an incision along the black line, through the teguments and fat. In the middle of the section, I gently cut through the muscles and peritoneum, so as to get in the fore-finger of the left hand, upon which with the crooked scissors I enlarged the wound upwards and downwards, equal to the black line I had made in the skin. The epigastric artery was opened, which I immediately stitched.

"I then cut into the uterus, and tore the membranes containing the child; but as the child was large I found the incision in the abdomen too small, I was obliged to enlarge it upwards to the

short ribs, and downwards to the ossa pubis, the uterus in proportion. I then extracted the child without any violence, afterward the placenta and the membranes. I put my hand again into the uterus, and brought away some coagulated blood. The child was dead, but quite fresh. I reduced a little of the gut that came down, and made the gastroraphia at three stitches without any peg.

"After the first stitch the gut gave me no more trouble. I covered the wound with soft pledgets, applied a large compress, and over all, the napkin and scapulary.

"The poor woman bore the operation with great courage. After she was put to bed, she took a quieting draught with laudanum, and a bottle of emulsion for ordinary drink. She did not lose above four or five ounces of blood during the operation. In the night she bled a little, but it stopped before I got to her; she had not slept, but otherwise was tolerably well. Next day I visited her; she told me she had had some slumbers in the morning. About twelve o'clock she complained of sickness at her stomach, with an inclination to vomit; her pulse was then very frequent and small. She gradually grew weaker and weaker, and died about four in the afternoon. There came not away above two tea-spoonfuls of blood from the vagina, the uterus was at least one inch and a half thick."

Her friends would not allow her body to be opened, a circumstance much to be regretted, as the efforts of nature to accomplish a re-union of the parts would have been observable.

In the *Memoirs of the Academy of Surgeons at Paris*, are a great many cases, and also the disputes for and against performing the Cæsarean operation on women when alive.

CASE VII.—The following case of Cæsarean section, by Mr. Wood, man-midwife in ordinary to the Lying-in hospital in Manchester, appears in the *Memoirs of the Medical Society of London*.

"Elizabeth Thompson, of Hazlehurst, near Ashton-under-Line, aged thirty-two, was brought to the Lying-in hospital, on Monday, the 24th of last June. I saw her," says Mr. Wood, "in the afternoon, and was informed that labour came on about one o'clock in the morning; that the membranes burst soon after; that her pains had been very frequent; and that Mr. Ogden, a surgeon in that neighbourhood, was called in, who, upon examining her situation, thought proper to send for Mr. Simmons from Manchester. No attempt was made by either of these gentlemen to deliver the patient; but she was advised to become an in-patient of the Lying-in hospital in Manchester; and the poor woman and her friends readily agreeing to this proposal, she was conveyed in a cart from her house, which is nine miles distant from the hospital, and some parts of the road are very rugged.

"Upon a careful examination per vaginam, I found the pelvis so much deformed at the superior aperture, that the space from

the symphysis pubis to the os sacrum would only admit the points of my two fingers, and could not exceed an inch; and there was not in any other point, from the anterior to the posterior part of the superior aperture, a larger space than would admit the introduction of one finger; nor could I perceive the least appearance of os uteri or any part of the child, although I introduced my hand into the vagina.

"On discovering the extreme deformity of the pelvis, I desired a consultation of the men-midwives belonging to the hospital. Messrs. White, Hall, Tomlinson, and Thorp, attended, and having examined the poor woman with great care and attention, we were unanimously of opinion, that the delivery could not be accomplished by any other means but the Cæsarean section. She was made acquainted with our sentiments, and very willingly submitted to our proposal.

"About nine o'clock that night I performed the operation in the following manner, in the presence of the gentlemen before mentioned, who very obligingly gave me every necessary assistance: I began the incision on the left side, a little below the umbilicus, and having cut carefully through the parietes of the abdomen, which were very thin, to the extent of an inch, I introduced my finger, and, using it as a director, enlarged the wound by a probe-pointed bistory, in an oblique direction towards the spine of the ilium, to about six inches. The uterus was placed in immediate contact with the parietes of the abdomen, at the upper part of the incision; but towards the lower angle of the wound the intestines intervened, and began to protrude. As soon as the external incision was completed, I made an opening in the same manner, and in a similar direction, into the uterus, which appeared to be nearly half an inch in thickness, and with great ease extracted, by the knee, which presented at the wound, a large male child, which for a few minutes was in a very weakly state, but soon recovered, and continues strong and healthy.

"The placenta was brought away without any difficulty. The intestines protruded at the wound, but were returned and retained in the cavity of the abdomen, whilst I secured the lips of the wound by the interrupted suture, carefully avoiding passing the needle through the peritonæum. The ligatures were placed about an inch distant from each other, and the intervening spaces were supported by slips of adhesive plaster, over which I placed a common pledget; and a flannel bandage was applied, so as to occasion a moderate degree of pressure upon the abdomen. The quantity of blood lost during the operation was not considerable. It did not appear to exceed eight ounces, and mostly proceeded from the uterine vessels.

"The patient bore the operation with such remarkable patience and fortitude, that she was scarcely heard to complain.

" As soon as she was removed from the table, and laid in bed, she became sick and vomited; and her pulse at this time beat 130 strokes in a minute. An opiate was administered, and I saw her in two hours after the operation. Her pulse was reduced to 100, and no ways irregular. She had got some comfortable sleep, and the sickness had not returned.

" I saw her again, along with the gentlemen before mentioned, on Tuesday, at eight o'clock, A. M. She had got some comfortable sleep during the night: her pulse 106.

" She had voided a considerable quantity of urine; had a moderate discharge per vaginam; and she did not complain of much pain. A small quantity of bloody serum had oozed from the wound.

" At two P. M. we found the appearances much the same as in the morning. As the patient had no evacuation by stool, an emollient clyster was prescribed.

" Ten o'clock P. M. she had experienced a return of the vomiting, and complained of more pain of the abdomen; but upon removing the bandage, we did not perceive any material degree of tension. Her pulse 108, and rather hard. The clyster not having procured a stool, she was ordered to take half an ounce of a purging salt immediately; and if it should have no effect, or not stay upon the stomach, she was to take a pill containing three grains of calomel, and one grain of purified opium.

" On Wednesday, at seven A. M. we found that her sickness returned in an hour after the salts had been given; the pill was then administered, and the vomiting did not return for several hours after, but no evacuation had been procured. She had got little sleep during the night, and still complained of pain in the lower part of the abdomen. Her pulse was 120, and rather hard, tongue white, and skin dry. She was directed to take five grains of calomel made into a pill with conserve.

" At twelve we found that her sickness had returned in about two hours after taking the pill, and that no stool had been procured. Her pulse was about 144, and she was in a violent state of perspiration. Half an ounce of castor oil was directed, and a purgative clyster to be injected immediately. At four, P. M. her pulse was much in the same state; she had experienced no return of vomiting, and seemed more composed. The clyster had been retained, and she was ordered another, composed of two drachms of tobacco infused in half a pint of boiling water.

" Nine o'clock P. M. we found her much in the same state as when we last saw her. The injections had come away, but there was very little appearance of feces. Her sickness was not so troublesome; pulse 140. As she complained of more pain in the lower part of the abdomen, the bandage and dressings were removed, and there was very little tension. The wound had a very favourable appearance, and the lips were in contact. Dressings were applied

as before, and she was ordered to repeat the pill with calomel, and if it should not operate in three hours, a clyster with half an ounce of common salt was to be administered; and, as soon as an evacuation was procured, she was to take a grain of purified opium. A blistering plaster was also applied to the abdomen, where the pain was felt.

"Thursday, seven o'clock A. M. she had passed a tolerable night, the blister had risen, and she seemed more composed; pulse 150. As the injection had been retained, she was ordered a suppository of soap.

"Two o'clock P. M. appearances were much more unfavourable. She had very frequent vomitings of a coffee-coloured fluid. The pain in the abdomen was very much abated. Her pulse was very feeble, and beat more than 160 strokes in a minute. Till this time she had observed an antiphlogistic regimen: but was now ordered wine in gruel and whey, and to take a bolus containing musk and salt of hartshorn, of each ten grains, which was to be repeated in four hours. As the clyster had been voided without any appearance of fæces, another injection was ordered to be thrown up, with some degree of force, by a syringe.

"At nine o'clock the symptoms were become so extremely unfavourable, as to preclude all hopes of her recovery; nor was she likely to remain alive many hours. Her pulse was excessively frequent, small, and irregular. She had incessant sickness and vomitings, was very restless, and her respiration much hurried. The injection had come away, but without producing any effect. From this time she sunk gradually, and expired on Friday about one o'clock A. M. which was seventy-six hours from the time of the operation being performed. She retained her senses to the last."

The following are described by Mr. Wood to have been the appearances on dissection: "In about six hours after her death," says he, "I inspected the body, in the presence of the gentlemen before mentioned, and some others, and found that the edges of the external wound were in close contact, but only a very slight adhesion had taken place. On exposing the cavity of the abdomen, there appeared to be about ten or twelve ounces of a bloody serum, but not much coagulated blood. There was very little appearance of inflammation, either of the peritonæum or intestines. The latter seemed much distended, but there did not appear to be any accumulation of hardened fæces.

"On examining the uterus, which was about seven inches in length and four in breadth, we found its mouth very much dilated. The wound, which extended from the fundus obliquely downwards about four inches, was not at all united, and there was very little appearance of inflammation about it, but the inferior portion of the body and *cervix uteri* were evidently in a gangrenous state."

To this account the author annexes the following remarks:

"The deformity, above alluded to," says he, "was produced in the adult state by malacoction.

"About nine years ago the poor woman brought forth a living child, and had an easy labour. After this confinement she was frequently affected with pain about her loins, and some degree of lameness. She conceived again, and Mr. Hall informed me that he attended her in labour about seven years ago, and, at that time, found the pelvis so much distorted, that he was under the necessity of opening the head of the child, and delivering by the crotchet. Her state of health after this was somewhat tolerable; but the pain about the loins continued to increase, attended with the lameness, but never to so great a degree as to prevent her walking.

"From the inclination of the fundus uteri to the left side, from the parts of the child that presented upon opening the uterus, and from the particular curvature of the spine, as appeared upon inspecting the body, the os uteri and child's head appear to have been forced upon the right side of the pelvis, and to have remained considerably above the superior aperture, which prevented their being discovered upon an examination per vaginam.

"From a review of the case, there is very great reason to suppose that her death was not occasioned by the operation, but by the gangrene that had taken place in the cervix uteri, which in my opinion must have been occasioned by the pressure of the child's head upon that part, prior to the operation; and I am induced to believe, had the operation been performed earlier, and at the patient's house, she would have stood a great chance of recovering. The pelvis was removed, and when carefully divested of all the soft parts, the dimensions were found as follow:

"The lumbar vertebræ projected inwards, and made a considerable curve to the left, as will be seen in the annexed plate.

"The distance from the lower part of the second lumbar vertebra to the anterior part of the spine of the os ilium, on the left side, is two inches.

"The distance from the lower part of the second lumbar vertebra to the anterior part of the spine of the os ilium, on the right side, is five inches.

"From the crista of one os ilium to the other, at the most distant points of the pelvis, measured ten inches and a half.

Superior Aperture.—"The conjugate or antero-posterior diameter from the symphysis pubis to the upper edge of the last lumbar vertebra A. A. (see the dotted outline in plate) is one inch and a half.—This diameter is not taken from the os sacrum, or its junction with the last lumbar vertebra, because the point of their junction is so much sunk into the pelvis, that the place it should have occupied is represented by the fifth lumbar vertebra.

"The transverse diameter G. G. measures four inches and five eighths. It is taken from one sacro-iliac symphysis to the other.

"The distance of the point of this aperture, which is opposite to the anterior part of the right acetabulum, from the lumbar vertebra, C. C. is only half an inch.

"The distance from that part of this aperture which corresponds with the posterior part of the right acetabulum, to the os sacrum, D. D. is three quarters of an inch.

"The distance of the point corresponding with the anterior part of the left acetabulum, from the lumbar vertebra, in the direction E. E. is five eighths of an inch.

"The distance of the point of this aperture, opposite to the posterior part of the left acetabulum, from the os sacrum, in the direction F. F. is three fourths of an inch.

"The distance of one os pubis from the other, in the points marked B. B. is seven eighths of an inch.

"The distance from the right sacro-iliac symphysis to the symphysis pubis, G. A. is three inches and three fourths.

"The distance from the right sacro-iliac symphysis to the left os pubis, G. B. is three inches and three eighths.

"The distance from the left sacro-iliac symphysis to the symphysis pubis, G. A. is three inches and five eighths.

"The distance from the left sacro-iliac symphysis to the right os pubis, G. B. is three inches and one fourth.

"The largest circle that can be formed in any part of the superior aperture, does not exceed in diameter one inch.

Inferior Aperture.—"The distance from one ramus ossis ischii to the other, where they are united with the rami pubis, measures only half an inch.

"The distance from the tuberosity of one os ischium to the other measures one inch and two tenths.

"The conjugate or antero-posterior diameter, taken from the symphysis pubis to the point of the os coccygis, is three inches."

In the Medical and Physical Journal, Mr. Hardman, of Bolton, in Lancashire, gives the following intimation of the degree of success which has attended this operation in recent instances. "Hysterotomy, or the Cæsarean section," says he, "was performed upon a woman at Rochdale, about a month ago; the child was taken out alive, but is since dead; the mother survived till the fifth day. Three cases of this sort have occurred in Lancashire within little more than two years, two at Manchester, and the one now announced at Rochdale. This is extremely singular; for, I believe, no such instance is recorded as having happened in this country for many years before. In the first that is mentioned from Manchester, which is the case of Ann Lee, the woman was in a dying state when she underwent the operation, and a putrid foetus was extracted; but as the state of it could not be ascertained before birth, and as

the child might have been preserved, nothing could add to the danger of the mother; the operation was unquestionably justifiable. In the second, that of Elizabeth Thompson, the section was made in less than twenty-four hours from the coming on of labour, and she survived it nearly seventy-six hours; the child lived about eighteen months. It is worthy of remark in Elizabeth Thompson's case, that it appeared to the accoucheurs of the Lying-in hospital at Manchester, where she was operated upon, that she did not die in consequence of the operation, but of an injury done to the uterus by the pressure of the child's head, which had taken place before the operation. It is indeed surprising that so little mischief should be occasioned by extracting a child in this way; nevertheless, they are gentlemen of veracity, and, in their own neighbourhood, of the first eminence in their profession. I am credibly informed, that she was so well the day after the operation, as to sit up in bed and smoke a pipe of tobacco. The woman at Rochdale was seen by Mr. White, of Manchester, soon after the operation; and at that time, as I am well informed, there was nothing in her situation that denoted danger till the dressings were removed from the external wound, which unfortunately appeared to be in a gangrenous state, and this, most probably, was the immediate cause of death. If women can safely undergo this operation upon the continent of Europe six or seven different times, of which we are well assured, why should practitioners be discouraged from employing it, by its failure in the few instances that have occurred in this country? The authority of Mr. White must have great weight in recommending the practice, and also much force in doing away the fears of those among us who had been deterred from practising it by an apprehension of danger."

CHAP. VIII. OF THE SECTION OF THE SYMPHYSIS PUBIS.

M. BAUDELLOCQUE, as has already been observed, condemns this operation; and, from what he has advanced, apparently with reason. As no theory, however, can be looked upon as thoroughly established until it be confirmed by experience, this gentleman has collected together a number of the principal facts relating to this subject. He supposes, that unless it has been successful in saving both the life of the woman and child, the cutting of the symphysis of the pubes cannot by any means be said to have answered its purpose. It is not sufficient that the child has shown some signs of life at its birth, and that the mother has survived for some time. In this respect the Cæsarcan operation has the advantage of it, as it always saves the life of the child, and it is very rare for the woman to sink under it immediately. He is of opinion, that there is

scarcely one of the cases of this operation, the relation of which may not be justly contested, or solid objections raised against it; either because the operators have been deceived with regard to the dimensions of the pelvis and of the child's head, or because they have greatly exaggerated the advantage gained by the separation of the bones.—The first and most remarkable instance of success in this operation is of a woman named Souchot; but though it is not denied that the woman was delivered, and recovered after the operation, yet it has been said by those who take the contrary side, that there was no necessity for performing it. It is certain that this woman had been delivered four times before; in all of which cases the child was killed. M. Baudelocque does not enter into the merits of this question: he considers only what advantage could possibly be gained by it.

“Whatever degree of separation,” says he, “took place between the ossa pubis after the section of the symphysis, it must have augmented the size of the passage; that is an incontestable fact: but how much did it enlarge in the direction in which it was originally too narrow? The solution of this problem would be easy, if we knew the dimensions of Souchot's pelvis as well as we know those of her child's head. According to the estimation made of it by the physicians who performed the operation, the diameter of the pelvis was only two inches and a half in the direction from the pubes to the sacrum superiorly, and that of the child's head was just three inches and a half. The excess of the latter was consequently one inch, as well as the amplitude to be procured to the former. A separation of two inches and a half between the ossa pubis, the greatest which it was then thought could be obtained, not being able to give more than six lines to the diameter of the pelvis in the afore said direction, they thought to make the remaining surplus of the head pass into the separation between the bones; and, moreover, they had the precaution to make the partial protuberances pass successively through the strait, in order to get another line by that means; so that, by this system, the section of the pubes produced a result of 13 lines at least, considering it relatively to delivery. Notwithstanding this ingenious calculation, and this great product, the passage was still found narrow enough to give some obstruction to the child's head, and to endanger its life.

“It seems evident that this plan was not formed till after the execution; and that they have only sought to explain what they must have done according to the opinion which they entertained that the diameter of the child's head was an inch larger than that of the pelvis, and not according to what they did and observed; because no one had yet determined the product of a separation of two inches and a half between the ossa pubis, with respect to the different diameters of the pelvis, and particularly respecting that which goes from before backward; because they did not measure

the separation as they affirm they did, neither in the case of Souchot nor in any other; because the accoucheurs of that woman were then agitated, much agitated, as they have publicly confessed; lastly, because this great product, and those sage calculations which we admire in their history of it, were not then necessary. Though they have allowed but two inches and a half to the small diameter of the superior strait, other accoucheurs equally skilful have assigned it six lines more; and they were not deceived if they considered it a little diagonally, as the smallest diameter of the child's head always presents; that is to say, from one of the sides of the projection formed by the base of the sacrum to the symphysis of the pubes."

Our author now goes on to show, at great length, that the pelvis of the woman in question was less out of proportion than had been represented; that only two lines of enlargement were necessary, and no more than two were obtained. In like manner, he says, that all the other women upon whom M. Sigault operated were equally well formed, excepting one named Vespres. This woman died after passing five days in great agony. The ossa pubis were separated about an inch and a half; and in consequence of this separation, the sacro-iliac symphyses were plainly injured, as well as the neighbouring part. On inspecting the body, these were found open, with the periosteum separated from them: there was also a collection of purulent matter of a dark grey colour, extending very far into the cellular tissue of the left iliac fossa, &c.

In this case, both the mother and her child perished; and M. Baudelocque looks upon it to be sufficient to show the inefficacy of the operation: and he tells us, that out of five women whom Sigault delivered in this way, one died, and four of the children: but M. le Roy, a more successful operator, out of an equal number, saved all the children. In a case related by this gentleman, the ossa pubis are said to have separated two inches; and by parting the thighs, an opening of near three inches was obtained: but in this case again, M. Baudelocque controverts the measurements of Le Roy. Another woman named Du Belloy, on whom the operation was performed, began to walk on the tenth day after; and this seems to be almost the only case against which M. Baudelocque has not some objection. He mentions, however, an experiment performed on the body of a woman who had died on the eleventh day after the Cæsarean operation had been performed in the linea alba. The body was œdematous, which rendered the case more favourable; and a dead child was placed in the belly, after taking out the uterus. The pelvis was only 20 lines in the small diameter, and four inches and a quarter in the transverse. The diameter of the child's head was but three inches five or six lines from one parietal protuberance to the other; the trunk was thin, and every part of the body had been pressed and kneaded, to restore as much as possible the suppleness which death had taken away. An attempt was then

made to bring the child through the pelvis by pulling its feet; but it was found impossible thus to disengage it further than the breast. The symphysis of the pubes was then laid bare, by an incision of two inches and a half; preserving, below, the anterior commissure of the labia pudendi; and above, an extent of 18 or 20 lines under the inferior angle of the Cæsarean operation. The ossa pubis separated at first no more than nine lines; which opening was augmented as gradually as possible to 21 lines by separating the thighs, and afterwards it was further increased to two inches and a half by pulling the hips. It was next attempted to bring away the head, which had spontaneously placed itself in the most advantageous situation: but, though several gentlemen of the profession employed their strength successively at the trunk, and on the lower jaw with two fingers in the mouth, it did not advance a single line; nor would it pass the strait until M. Baudelocque seconded those efforts by pressing on the head with one hand placed in the belly, and by compressing it strongly in the direction of its thickness. At the instant when it cleared the strait, the inferior angle of the incision in the teguments tore to the vulva; and the wound was so lengthened towards that of the Cæsarean operation, that those three openings were very near making but one. The sacro-iliac symphyses, which were already a little open, and the ligaments and periosteum ruptured by the time that the ossa pubis were separated 21 lines, now gave way entirely, and with so much noise as to be distinctly heard by every one of the assistants. The ossa pubis, after the passage of the head, remained at the distance of three inches from each other; the angle of the right os pubis was two inches and six lines from the centre of the projection of the sacrum, and the angle of the left os pubis only two inches and three lines; so that the diameter of the pelvis was augmented seven lines in one way and ten in the other.

From this experiment, M. Baudelocque concludes that very little advantage can be expected from the operation where the pelvis presents only 18 or 19 lines, or even 21 superiorly, such as was the pelvis of Belloy. We must observe, however, that we cannot argue with propriety from a dead to a living subject: though if the measurements are wrong, as our author afterwards says, although at first he "had nothing particular to object" to her case, the whole argument in favour of the operation must fall to the ground.

Objections of a similar kind are made to every other case which M. Baudelocque relates; and as it is impossible for those who were not acquainted with the parties to judge of the propriety or impropriety of the operation, we shall content ourselves with describing from M. Baudelocque the appearances met with in the body of a woman who had died in the operation. "The left labium was very much swelled and livid; the sacro-iliac symphyses were of a brownish colour to the extent of an inch at least, on account of the

blood extravasated under the periosteum which was detached from them; they were overflowed with a purulent and ichorous discharge, more abundant on the left side than the right; and which sprung from the bottom of them, through several openings, which were so many rents, whenever the ossa ilia were moved and pressed towards the sacrum; the left symphysis was open five lines, and the right only three; a gangrenous abscess was seen on the right side behind and above the acetabulum, which extended to the anterior and inferior part of the uterus, where there was an eschar of the same nature; an ulcer also gangrenous, and in form of a chink, was observed in the posterior part of that viscus, from the upper part of its neck to the insertion of the ligament of the ovarium, and it penetrated into its cavity. The diameter of the pelvis was two inches and a half from the pubes to the base of the sacrum; five inches from one side to the other; and four and a half from one acetabulum to the sacro-iliac junction of the opposite side. The section had been made on the left os pubis, which was cut clean, and without the smallest notch."

From these, and a number of other examples which our limits will not allow us to insert, our author deduces the following conclusions.

"Though the section of the pubes has been thought more simple, more easy and certain, than the Cæsarean operation, at a time when experience had not yet demonstrated the difficulties it might present, and the dangers that might follow it, ought we to think the same of it at present? How many times already has it been necessary to have recourse to the saw to separate the ossa pubis? and how often has it not been found impossible to procure any distance between them after the separation? How often has this operation produced a free passage for the child, whose preservation ought necessarily to enter into the plan of the operator, as well as that of the mother, and constitute a part of its success?"

"This new operation will appear more simple and less painful than the Cæsarean, if we only consider the extent of the incision, and the nature and importance of the parts concerned in it: that is an indisputable fact. It is only the teguments and the fat which is divided, at most only two inches and a half, and the symphysis of the pubes; there are usually only small vessels cut, incapable of furnishing much blood, and the instrument does not touch the uterus; the child comes into the world by the way that nature intended, and which the section of the pubes renders more or less accessible; there is no considerable hemorrhagy to be feared, nor those extravasations of milky and purulent matter which almost always mortally injure the interior viscera which they fall upon; there are no absolute difficulties in the execution of this operation but what arise from the intimate consolidation of the bones; and it no way exposes women to subsequent hernias which have been so

frequently seen after the Cæsarian operation: this is the idea which its partisans have had of it, and which the greater part of them still entertain.

“ But the section of the pubes seldom procures the child an easy exit; for hitherto the greater part have died in the passage, or have been victims, a few minutes after their exit, to the efforts necessary to effect it. When the separation of the ossa pubis has been made, it has not always been possible to remove them from each other, on account of the consolidation of the ilia with the sacrum; and this case, which does not seem to be exceedingly rare, and which cannot be known till after the operation, renders it fruitless, and cannot dispense us from the Cæsarean operation.

“ If we reflect ever so little on the danger to which the child is exposed in a preternatural labour, where we are obliged to bring it by the feet, and on the small number that then escape death, when the mother’s pelvis has not, pretty nearly, all its natural dimensions, we discover another source of accidents which accompanies the section of the pubes; and which we doubtless should diminish, if we could commit the expulsion of the child to the contractions of the uterus, or take hold of the head with the forceps, as some practitioners have already done; but, except in that very small number of cases, the child has always been extracted by the feet, whether the head presented or not.

“ Though this operation very seldom secures the child’s life, even when the pelvis is not excessively deformed, it is not then always exempt from the severest consequences to the mother. The death of both is certain when that deformity is extreme. The consequences of a spontaneous separation of the ossa pubis, and of the ossa ilia and sacrum, in some natural or laborious labours, long since announced those which might be expected from this new operation; the example of Vespres, those of the fifth woman on whom M. le Roy performed it, the fourth by M. Cambon, that at Arras, at Duffeldorp, at Spire, at Lyons, at Gènes, that by M. Riollay, by M. Matthiis, &c. have proved that it was not without cause that those accidents were dreaded. A devestation in the external parts and the neck of the uterus; an inflammation and gangrene of that viscus; collections of purulent, sanious, and putrid matter, in the cellular tissue of the pelvis; a hernia of the bladder between the ossa pubis; ecchymoses along the psoæ muscles; injury to the canal of the urethra, incontinence of urine, and gangrenes more or less profound, &c. form the group of accidents of which this new operation is susceptible. Granting that those of the Cæsarean operation are as formidable for the mother, at least it presents a certain resource, exempt from every danger, for the child. Which of the two operations therefore ought to be preferred?

"Even if we could, without inconveniences to the woman, obtain a separation of two inches and a half between the ossa pubis after the section of their symphysis, the Cæsarean operation would still be the sole resource in cases of extreme deformity of the pelvis; the section of the pubes cannot enter into comparison with it, except when the small diameter of the superior strait shall have, at least, an extent of two inches and a half. Though I suspended my judgment, at the time I published my first edition, concerning the preference to be given to one of these two methods, in the latter case, till I could procure more positive information of the innocence or danger of so considerable a separation; though I required that men who had no interest in vaunting this new method to the detriment of the former; in one word, that its adversaries should have seen a separation of two inches and a half, without a rupture of the sacro-iliac symphyses, and without inconveniences to make me adopt this new operation; at present, better informed on all these points, I am not afraid to reject it, and to affirm, that no one has ever separated the ossa pubis two inches and a half without destroying the life of the woman. It has had no success but when it has been performed on pelvises at least two inches three quarters in the small diameter, and when the separation has been limited to much less than the point to which they fancied it was carried; in those cases, in fact, where it was absolutely useless; the pelvis being larger still, for I have found it to be more than three inches in some of the women. The section of the pubes cannot at present maintain any comparison with the Cæsarean operation; at most, it might be substituted for the forceps, in some particular cases only: for it cannot, without great inconveniences, give the pelvis an increase of more than two lines from the pubes to the sacrum superiorly; and that instrument may, without danger, reduce the diameter of the child's head as much. But what practitioner would prefer a new operation, which seems to be surrounded by rocks on every side, to one that has been crowned with a thousand successes? If we allow the former any advantages, they would never be more evident than in that species of locked head mentioned by Roederer, where we cannot (says he) introduce any instrument between the head and the pelvis, at whatever part we attempt it; in that case, it would merit a preference over opening the cranium, the use of the crotchets, and the Cæsarean section proposed by the same author: it would be preferable also, in cases where the inferior strait is contracted transversely, provided that a small separation were sufficient to give that diameter the necessary extent."

Notwithstanding the plausibility of what has been advanced by the different continental practitioners whose names have occurred, we acknowledge our scepticism without the least reserve; and

are inclined to place an implicit confidence in the following candid opinion advanced by Dr. Denman.

“ For the reasons advanced by Dr. Hunter,” says he, “ the operation was never (except in one unhappy case) performed in this country, and so perfectly were the minds of men satisfied of its impropriety and insufficiency, that I do not believe the section of the symphysis ever came into contemplation in any one case of difficult parturition with any of the gentlemen who practise midwifery in this city. But as accounts of the operation were frequently brought from the continent, and as active measures were pursued for supporting the celebrity with which it had been first brought into notice, Dr. William Osborn examined all the cases then published, stated with precision the little advantages gained, the injuries occasioned, and the general result of the operation, and proved both by facts and arguments the cruelty and futility of it, in a very sensible essay first written professedly on the subject.

“ Here the matter might for ever have rested; but in writing on the practice of midwifery, as well as any other art, it seems necessary to record not only what has been proposed and done with success, but the trials that have been made of things proposed, though unsuccessful, and on what circumstances the want of success depended; otherwise there might be at different times a repetition of the same trials and of the same misfortunes. Perfectly convinced though I am of the impropriety of this operation, and hoping that no attempts will ever be again made to bring it into practice, it seemed necessary to give this short account of it, and I cannot refrain from making the following observations.

“ 1. It is proved, that some enlargement of the capacity of the pelvis is actually obtained by dividing the symphysis of the ossa pubis.

“ 2. That the evils, which have followed this operation, have been very much occasioned by its being performed unskilfully, or by injudicious endeavours to increase that enlargement of the capacity of the pelvis beyond the degree which naturally follows the division of the symphysis.

“ 3. That many women who have undergone this operation have recovered; though of those who recovered many suffered very serious complaints for a long time, or for the remainder of their lives.

“ 4. That some children were born living when this operation was performed.

“ We may therefore presume to say, that if a case could be so precisely marked, that there should only be a deficiency of just ~~to~~ much space as would be supplied by the simple division of the symphysis, the operation might in that particular case be considered.

"We may also say, that this operation is not so certainly fatal to those women on whom it may be performed as the Cæsarean operation; nor so certainly destructive of children as that of lessening the head.

"We may then be allowed to suppose a case, and such a one is more than possible, in which a person of very high rank, the life of whose child might be of the greatest public importance, could not be delivered, without the destruction of the child, or her child be preserved but by the Cæsarean operation at the expence or great hazard of her life; and that she, through human frailty, might refuse to submit to the Cæsarean operation; yet the great interests and policy of the nation might forbid the destruction of the child. Of course both the mother and child would be inevitably lost. Should such a case occur, which, as I said before, is more than possible, then the section of the symphysis of the ossa pubis might be proposed and performed, as it would in some measure meet both their interests; being less horrid to the woman than the Cæsarean operation, and, instead of adding to the danger, give some chance of preserving the life of the child.

"But, from the statement of this case, or any thing before advanced, *I hope it will not be concluded, that I mean to insinuate a wish, or to advance an argument, in favour of this operation, in the cases for which it was originally proposed, or any other which can be imagined*.*"

* Though not exactly in unison with the subject of this chapter, we are tempted to mention a curious case which lately fell under the management of Mr. Kendrick, an eminent surgeon in Warrington. The patient was a sickly, emaciated woman, who, in a former labour, had distinctly perceived a degree of friction, or crackling, take place at the symphysis pubis. Though she recovered from the immediate effects of parturition at that time, she gradually became more and more sensible of a want of connection between the bones of that part, grew incapable of supporting herself in an upright position, and at length, falling into a consumptive state, she was constantly obliged to be carried from her bed to her chair. Her extreme weakness was such, that, in her present labour, her pains were not strong enough to effect her delivery. Mr. Kendrick, after the most patient attention to this unfortunate case, found it necessary to turn the child, as the only means of accomplishing its birth. Whilst his hand was in utero, he had the most complete evidence, not only of the *disunion of the symphysis pubis*, but of the extremities of the bones *overlapping each other*, to such an extent, as to cause a strong and inconvenient pressure on his arm, from the near approach of the ischia. The patient died, as was expected; but, unfortunately, no persuasions could induce her friends to permit an examination of the body. We have reason to believe, the particulars of this case will be stated circumstantially in a communication to the Medical Society of London.

PRACTICE OF MIDWIFERY.

PART III.

OF THE ACCIDENTS ARISING FROM LABOUR, THE GENERAL MANAGEMENT AFTER DELIVERY, AND THE DISORDERS SUBSEQUENT THERETO.

CHAP. I. LACERATION OF THE PERINÆUM.

ONE of the accidents to which women are liable under certain circumstances of labour, and often *unavoidably* so, is laceration of the perinæum. It has been already said that a defence of the parts against this unpleasant event is almost all that an accoucheur has to do in a labour that is perfectly natural. Instances, however, have occurred where every precaution has been fruitless, though exerted by practitioners of undoubted ability and experience. Dr. Smellie has furnished the following instances :

CASE I.—“ I was called,” says he, “ by the friends of a young woman in Park-street, who had been delivered of her first child by her aunt, who was a midwife in the country at some distance. The fifth day after delivery, the nurse had alarmed the young creature and friends, by telling them that she was torn. I examined and found that the frenum labiorum was rent ; but not the sphincter ani. They were all exclaiming against the midwife. I told them that such things would sometimes happen, even to the best practitioners ; that there was no danger, and that the parts would recover and contract. The great anxiety of the patient was on account of her husband, who was then abroad ; she feared that this misfortune would cool his affection. I made her easier by assuring her, that if she kept the secret, he would know nothing of the matter. I have indeed had cases, though seldom, in which this accident has happened ; and from knowing that it commonly occasioned great anxiety to the patient, I spoke privately to the nurse, as in the following case.”

CASE II.—“ I attended an elderly woman of her first child ;

the head was large, the perinæum was largely stretched and very thin. I held the flat of my hand against it during every pain, to prevent laceration by the head's coming out too suddenly. The pains were very strong; and when one was over, I withdrew my hand to get some pomatum, to lubricate the parts. In this interval a pain coming on sooner than I expected, and before I could introduce my hand to guard the parts, the head was delivered, and the parts were torn, as in the former case. I told the nurse the misfortune; but desired her not to mention it, because it would make the patient uneasy, and give her (the nurse) much trouble. I assured her the parts would recover, and no bad consequence ensue.

"I was desired to visit a woman whom another practitioner had delivered, and where he had stitched the perinaum after it had been rent in labour. The pain and inflammation were very great, and the stitches did not seem to be of any service. I therefore advised to take them out; the patient was easier, the inflammation abated, and the parts recovered."

CASE III.—"I was called by a midwife to a woman on the fifteenth day after delivery. The perinæum, vagina and rectum, were torn into one about the length of two inches, which prevented the retention of the fæces. The edges of the lacerated parts were beginning to skin over. I attempted with scissors to pare the edges, as in the hare lip; but could not possibly hold the parts so as to effect this purpose. I then armed a lancet, and with the point scarified them, and with great difficulty made two deep stitches through the vagina and rectum, and two in the perinæum; but in two days this brought on a great inflammation, and the stitches all tore out. The parts digested and skinned over; but did not cement or join together: however, they contracted in such a manner, that in three months after she could retain her excrements."

CASES IV. and V.—"I attended in two days at different times, where the labours had both been tedious from large children. The external parts were much inflamed, and mortified sloughs were discharged from the vagina, after which the urine followed involuntarily into the vagina. On examining, I found a passage from the bladder into the former. They both had made water freely for several days before I was called, so that I was certain the openings into the vagina proceeded from one of the mortified sloughs casting off from the parts. I tried in the first to make a suture to bring on an inflammation so as to contract the opening, but could not succeed, and the patients continued in that miserable situation."

CASE VI.—"I was called by Dr. Thomson to assist him in delivering a woman where the arm of the child presented. He told me that the woman had been so torn in a former delivery, that she could with difficulty retain her excrements. Some time

after her recovery, we examined the parts, and advised with others; but found it was impossible to pare the parts so as to get them to unite with the future. Besides, the vagina and rectum where the laceration ended, felt so thin that they could not join at that part. One of my pupils told me he had succeeded in a case where only the perinæum was torn, by making immediately the twisted future, as in the hare lip: however, as rents of the perinæum only are of little consequence, I never tried that method, imagining it dangerous to expose the woman so soon after delivery; and where the vagina and rectum are torn into one, it is impossible to use the twisted future. This last case is of more consequence, on account of the involuntary discharge of the fæces: though, in time, the parts by degrees recover in some measure their retentive faculty."

CASE VII.—"A woman, from a distorted pelvis, had lost her child in a former labour, and was in labour of the second, which proved tedious also. I was called, and just as the head was delivered entered the room; but as the child stuck at the shoulders, I delivered the body in a succeeding pain. On introducing my hand into the vagina, I was surprised to find part of it torn from the right side of the os uteri about three fingers' breadth. The placenta soon followed, after which I again examined and was certain of the laceration, only the rent felt smaller, and the os uteri was a little torn also on that side. This being at some distance in the country, I desired she would stir as little as possible. I was afraid of the worst from the laceration of these parts. The child was dead; but the woman recovered without any bad symptoms. I delivered her afterwards of another, which was small and alive, and I found a large gap or chasm at the side of the os uteri. I have had some others, in which I have been sensible of the os uteri's having been rent; but never found it of bad consequence, unless the patient was thrown into a fever by bad management; or other dangerous symptoms. These might bring on a mortification sooner in the uterus, by the inflammation at that part, in consequence of the laceration."

The modern practitioner will not hesitate to condemn all attempts to unite lacerated surfaces by *future*, or even by any *painful* means of approximating their edges, till those edges are in a state *capable of union*.

CHAP. II. LACERATION, OR RUPTURE OF THE UTERUS*.

RUPTURES of the uterus may be reckoned amongst the most fatal cases which occur in midwifery. The general bad termina-

* Transactions of the London Society for Medical and Chirurgical Information, vol. I. p. 184, a communication by Mr. Haden, of Derby.

tion of them has led some practitioners to consider all attempts towards preserving the life of the woman as unlikely to be efficacious. It has therefore been the object of many practitioners to endeavour to save the child, the mother's state being considered as desperate.

Ruptures, or lacerations of the uterus, are, with respect to the child, of two kinds. One, where the child, either in part or wholly, has passed into the cavity of the abdomen: the other, where the uterus has sustained the same injury, but the child has still remained in its cavity. All those symptoms which depend upon the injury suffered by the uterus will be the same in both cases, and they are either such as arise from the violence done to it, or from the hemorrhage occasioned by the laceration, or from other parts being affected in consequence of the injury to the uterus.

Accordingly, independently of the passage of the child into the cavity of the abdomen, it is found that when the uterus is ruptured, the immediate consequence, or attendant circumstance upon the injury, is a sudden sensation of violent pain in the part. Next, the labour pains, though perhaps violent before, cease suddenly: frequently there is hemorrhage, but this symptom depends on the vascularity and extent of the part ruptured, and the situation of the child; because there may be, and often is, a great internal effusion of blood without any external sign of it. Faintness, with debility of the pulse, paleness of the skin, and general failure of the powers of the body, succeed.

Besides all these symptoms, there is another which seldom fails to accompany this disease, viz. a vomiting of a dark brown or chocolate-coloured matter, which appears immediately, or in a very short time after the accident.

It may be affirmed, that all these symptoms in labour never arise in one woman, except from this cause, and therefore where all these are present, even though the child may still remain in the uterus, we are as fairly warranted in believing that there is a rupture of the uterus, as a physician, in a case of inflammation of the pleura, would be from the usual symptoms attending that disease, though he could not see the alteration which had taken place in that membrane.

CASE I.—A woman, aged thirty-six, had been married twelve years before she became pregnant. At the latter end of January, 1797, she was taken in labour at eleven o'clock in the morning, with her first child. At ten at night, the labour pains were very strong, and the child's head was in the pelvis, covered by the lower segment of the uterus, the orifice of which was dilated to the size of a crown-piece.

At three o'clock the next morning the head was very little advanced, but the os uteri more dilated. Her pains, which returned every ten minutes, were extremely violent, and increased

both in strength and frequency, till between seven and eight o'clock.

The child, notwithstanding, made no progress.

At this time, she was seized with an excruciating pain, attended with a loud shriek; after which she instantaneously became quite easy, and fell asleep, which she had not done since the commencement of labour. After sleeping about a quarter of an hour, she complained of great sickness, and immediately vomited a large quantity of a brown-coloured matter. This was repeated eight or ten times, without any return of labour pains. Her countenance now became cadaverous, her lips pale, her pulse frequent, quick, and small, and her whole appearance justified the most serious apprehensions for her life.

"Having no doubt," says Mr. Haden, "from the concurrence of the symptoms above related, that the uterus was ruptured, I requested a consultation, and suggested the propriety of an immediate delivery by the forceps. This was readily assented to, and in a short time I delivered her of a living child. The placenta afterwards came away without assistance. Immediately after delivery, an opiate was given.

"In the evening I visited her, and found that she had slept at intervals; but she complained of a constant pain in the belly, even when no pressure was made upon it. Her pulse was 130 in a minute, small, and quick. An antimonial medicine, with opium, was ordered to be taken every four hours.

"On the following morning the abdomen was much swelled and painful, when even slightly pressed. A purging draught was given, which in the course of the day produced several evacuations. The opium and antimony were continued.

"On the next morning, the abdomen was much swelled, and extremely painful. The purging draught was repeated, which operated three or four times.

"On the following day she was better in every respect, the pulse was less frequent and stronger, the abdomen was less swelled and less painful, and she continued from that time to amend gradually.

"By the end of the 6th day the symptoms of inflammation having subsided, and those of weakness being most urgent, she took decoction of Peruvian bark for several days, and by the end of the third week had recovered. She had but little lochial discharge, which, after the third day, was more offensive than usual.

"I do not think it necessary to offer many observations on the foregoing case.

"My principal object in describing it, is to add another to the very few instances of recovery from the accident of a ruptured uterus, and to urge the necessity of immediate delivery

in a case where delay must be attended with the worst consequences."

Mr. Haden says he is aware that there may be some who may wish that the rupture had been ascertained by introducing the hand into the uterus, after the delivery of the child. "But," says he, "I am confident that all practical men will be *satisfied of its existence from the symptoms described*, and I could not have felt myself justified in gratifying my curiosity at the risk of the safety of the patient."

The possibility of recovery from an accident of this kind will be rendered still more allowable from the following case of a rupture of the gravid uterus, communicated to the Medical Society of London, by Mr. Kite, of Gravesend.

"Ruptures of the uterus," says Mr. Kite, "so very generally terminate in death, that I believe, even at the present day, there are many who do not conceive an instance ever occurred that terminated in recovery; that such cases, however, have really happened, cannot surely be doubted by those who have seen Dr. Douglas's account of Mrs. Manning's case, and Dr. Hamilton's case in his *Outlines of Midwifery*. Perhaps to these may be added, the case Dr. Douglas mentions from Heister, and another from Peau; but besides these I do not believe there are on record any instances, well authenticated, that terminated favourably."

The present case occurred under the observation of Dr. Beugo, of Rochester, who transmitted the account to Mr. Kite.

CASE II.—April 29th, 1791. Mr. Stanton, a gentleman, practising midwifery in that part of the country, was desired to visit Mrs. Williams, who was of a relaxed habit of body, about twenty-eight years of age, and in the seventh month of her second pregnancy. Nothing material had occurred during the former part of her pregnancy, but a day or two previous to her feeling her a very profuse hemorrhage had taken place, and she had slight pains in the region of the uterus.

30th. The pain very materially increased; the hemorrhage had been very considerable. A clyster was thrown up, which produced a sufficient evacuation, and a few drops of tr. opii were given in a mixture of nitre and pulv. tragac. c: the pain continued very violent, and towards the evening began to bear down. Upon examination, Mr. Stanton could not discover the os internum in the least dilated.

May 1st. "On examining at one o'clock in the morning," says Mr. Stanton, "I found the membranes ruptured, and the os internum so much dilated, that I clearly discovered the presentation of the shoulder; the hand and arm being situated behind the child. The patient appearing much exhausted, and her attendants extremely anxious about her safety, I solicited the assistance

of Dr. Beugo; but before his arrival, I endeavoured (during an interval of pain) to bring the arm forward, in order to prosecute the turn with the greater facility, which I accomplished much sooner, and with greater success, than I expected. The foetus was highly putrid, and, from appearance, must have been some time dead.

“Waiting in vain for a pain to assist in extracting the placenta, I was forced to introduce my hand into the uterus (as the funis was perfectly rotten) and withdrew the greater part of it. On the second attempt to bring away the remainder, I discovered a very alarming laceration through the posterior and inferior part of the uterus. Dr. Beugo now entering the room, and examining, expressed his surprise, feeling distinctly the intestines and their convolutions.

May 2d. “The patient much better than I expected, notwithstanding severe pain about the uterus and abdomen, which I was pleased to find alleviated by an enema of milk, soft sugar, and oil; she afterwards took a mixture of nitre and opium.

“The third day after delivery, the pain great, the discharge highly tinged with blood. On the fourth day, the pain very little, the discharge trifling, repeated the medicine as before. The fifth day, entirely free from pain. From that time altered her plan of regimen, when she every day recovered her strength, and at the end of three weeks pursued her usual domestic employments.”

This is succeeded by Dr. Beugo's account of what passed.

“As soon as I introduced my fingers,” says the doctor, “as far as the lower part of the sacrum, I met with a large clot of blood, as big as an ordinary egg, which I found, upon the re-introduction of my hand, had lain opposite to an opening, over which hung a loose jagged flap; and behind it I met with several convolutions of intestine, which I took between my fingers and thumb, to be ascertained of what they were; in this manner I traced at least three convolutions: distinctly perceiving at the same time the mesentery, and afterwards I pushed the whole up with my fingers beyond the middle of the hollow of the sacrum; but, on withdrawing my fingers, the convolutions descended also, though not quite so low as at first I found them. Through the opening my fore fingers could easily pass. It seemed to be about the middle of the hollow of the sacrum. I afterwards drew back my fingers, and found the cavity of the uterus considerably contracted above that point.

“In addition to Mr. Stanton's account, I have only to add, that no sickness or vomiting came on. She did not complain of faintness, and no particular alteration was perceived in the pulse; in short, neither at the time I first saw her, which was immediately after the rupture must have taken place, or at any subse-

quent period, did she appear to sustain any material inconvenience from the accident. I was, from one circumstance or another, always prevented examining the state of the discharge, but I was repeatedly informed, that it was in proper quantity, that it had the usual appearance, and that no matter was at any time to be perceived. She was ordered a low cooling diet, and such medicines as were calculated to avoid general inflammation.

"She has since had another child at the full time, without any particular disturbance, trouble, or uneasiness, perceptible from the circumstances of the rupture. She thinks the whole process of labour and recovery, with this last child, was in all respects like that with the first child; and that her recovery in both these was not so speedy, nor to so complete a state of strength and health, as it was in less than three weeks after that in which the uterus was lacerated.

"She always before was subject to a considerable degree of fluor albus, and has been with no remarkable degree of difference still subject to the same."

A case of the uterus lacerated by the force of labour pains, by Mr. Hooper, a practitioner in London, published in the same work, proved less successful.

CASE III:—"A gentlewoman, who was taken in labour about four o'clock in the morning," says Mr. Hooper, "sent for me in a great hurry about eight. She had had three children before, and (though she had been attended at different times by two eminent practitioners) they were all still-born, from the difficulty of her labours; she being very corpulent, her pelvis narrow, and children large. Upon entering the room, I found her in very strong pains; and by the touch perceived the membranes pushed to the middle of the pelvis, but rather of a conical form. I could easily feel the os internum towards the pubis, but a great part of its segment towards the sacrum was out of the reach of my finger; nor could I feel any part of the child presenting. In about half an hour the membranes broke, as she took a strong pain sitting on the close-stool, and a great quantity of coffee-coloured water was evacuated; her pains still continuing very frequent and strong. I then examined again, but could still find nothing presenting. In about an hour more I could just feel the child's head high up at the brim of the pelvis; but still finding the vacancy in the os internum, I attributed it to a laceration which might have happened in one of her former severe labours. I therefore encouraged her to wait with patience till the head should further advance into the pelvis, when I flattered myself there might be a chance at least to save the child with the forceps; to which end I kept her as quiet as possible, supporting her with broth, and, as she complained of great thirst, some balm tea occasionally. But though the pains continued strong, with (as she called it) a tearing

sensation in her back, even in the intervals of the pains; yet, as I examined from time to time, I could not perceive the least advance, nor indeed did the head, during a pain, seem to be at all protruded. About four in the afternoon she said the pain had entirely left her back; and was wholly in her belly and thighs, with continual nippings within her belly. After this, upon touching, I found the head rather higher than before, which disheartened me not a little; especially as her pains began to abate considerably. I then, the more thoroughly to satisfy myself as to the situation of the head, introduced my left hand, and with my fingers, in a flattened form between the head and sacrum, felt the left ear. In doing this I did not meet with the least pressure from the child's head, which was quite disengaged; nor could I even now feel the posterior part of the os internum. Being, however, satisfied as to the position, I withdrew my hand, the pains still growing less frequent and weaker; but she lamented greatly the nippings and pinchings in her belly, which rather increased as the true labour pains decreased. She had frequent retchings, but brought up nothing except wind. Some time after, upon touching during a pain, the head was not to be felt. I then desired her to sit on the side of the bed a little while; after which I again examined; and found it just as before. Upon considering this circumstance, with the state of my patient, who was now much lower and fainter than she had been all day, that some small hemorrhage, which at times had appeared from the beginning of her labour, was now increasing, that the pelvis was narrow, and the child probably large, I began to despair of the child, and was very uneasy on the mother's account; I desired, therefore, that another of the profession might be called in, before any step was taken respecting the delivery. Accordingly Dr. Griffiths (who had delivered her before with the crotchet) was sent for, and came about eight o'clock in the evening. The doctor having acquainted himself with the situation of affairs, and considering that, as the child's head was so high up, no attempt could be made with the crotchet, as in her former labours, the head then being fixed in the pelvis; that as her children were formerly large, and the pelvis small, much difficulty and danger must attend turning; and that our patient's condition would not admit of much delay, from which no benefit could be expected; and as her pains were now quite gone, and succeeded by a great faintness, the case appeared extremely unhappy and dangerous. However, as something must be done, we concluded to turn, if possible, and deliver footling; and this we were the more encouraged to do, as the doctor, upon examining the abdomen, felt two distinct substances, which he said he was in hopes were two children, and consequently smaller than if only one. I therefore, as she lay on her left side, introduced my

hand, on account of her belly being rather pendulous; and as the face of the child was to the right ilium, I passed my hand over it, and along its belly, till I reached both the feet: and this I did without feeling that stricture which the uterus generally causes upon the hand, when the waters have been for some hours evacuated; instead of which I met with some little embarrassment, from my fingers being entangled with a loose floating substance; which, however, I did not much attend to at that time. I told the doctor that I felt that body (as my hand passed along) which he hoped was another child; but which to the touch did not seem to be so. I felt likewise a stronger pulsation at the vertebræ lumborum, than I had ever observed in any such delivery. But though I brought the feet down to the os externum without much difficulty, yet it was not without many efforts, both from the doctor as well as myself, with change of posture several times, that we delivered as far as the nates. And though we now and then ceased operating, and supplied our patient with frequent suppers of wine and water, yet she sunk surprisingly, grew insensible, clammy, and died about ten o'clock the same evening; at a time when we were in great hopes of completing the delivery.

"The next morning I was desired to open the body, in order to take away the child. Upon making my incisions in the usual manner, a large quantity of blood flowed off; and the first part that presented itself immediately under the peritonæum was the uterus, whose fundus reached to within about a hand's breadth of the navel, and whose size was that of a man's two fists. On examining its surface, I perceived a laceration towards the sacrum from the os internum, to more than half way to the fundus. Under the uterus lay the child's head and shoulders, with its face to the left ilium, one arm over the pubis, and the other at the sacrum. I then took out the child from the situation in which we had left it the preceding night, which was of a monstrous size, of a livid colour, and with the cuticle in many places peeling off. I next drew out the placenta, which was quite loose in the abdomen, detached from the uterus."

From these appearances, joined to the circumstances of the labour, it was clear that the laceration of the uterus was begun before the membranes broke, and increased by the pains, till the child, with the placenta, was entirely expelled into the cavity of the abdomen.

CHAP. III. INVERSION OF THE UTERUS.

AMONGST the accidents which occasionally succeed labour, is the inversion of the uterus. Of this the following case, com-

municated to the Medical Society by Mr. Browne, of Camberwell, is a very decisive instance.

CASE. I "Elizabeth Emmett, the subject of the following history," says Mr. Browne, "is a woman of a good habit of body, and tolerably well proportioned. She sent for me to attend her in labour, between two and three o'clock in the morning of Monday, Sept. 19, 1796. Upon examination, I found the os uteri gradually dilating, to the extent of an half-crown; but, as I could not then ascertain the presentation, and as her pains had nearly subsided, I requested her to rise, and walk about; which soon obliged her to resume her former situation on her bed, and about nine o'clock, A.M. a rupture of the membranes took place, and it appeared clearly to be a footling case, which I delivered in the usual way. The child was dead, and in a very sphacelated state: after the foetal delivery some pain ensued, and, by a very slight effort to extract the secundines, the funis broke, it being also very putrid. The pains, however, not only continued, but became more excessive, with a degree of bearing down hardly to be conceived, and an actual inversion of the uterus, with the placenta completely adhering, took place. The dangerous state of the patient admitted of no delay; and having considered whether I should separate the placenta, and return the uterus, or reduce both together, on passing my finger round the placenta, finding it in no part detached from the uterus, I determined on returning them together, and happily succeeded.

"During this time no hemorrhage ensued, and I was therefore very averse to excite one, which a hasty separation of the secundines, in that relaxed state of the uterus, must have occasioned; having therefore waited a considerable time (the patient being as little disturbed as might be expected, considering what had occurred), I endeavoured to impress on the minds of the friends present, that no inconvenience would result: I gave her an anodyne, and directed proper nourishment, and such febrifuge aperient medicines as were requisite to prevent inflammatory symptoms, which, indeed, did not intervene; and on Thursday, Sept. 22 (in the evening), four days from the time of her delivery, a sanguineous discharge, to no great degree, took place, which gave me hopes that the contraction of the uterus was spontaneously occurring: the expulsion of the burden (which I anxiously waited for) happened on Friday the 23d, after a retention of five days, and at this time (now more than a month from her being put to bed) she has every appearance of recovering as favourably as in any of her former labours, she having thirteen children.

"The death of the foetus (by the mother's account) appears to have taken place about the 20th of August, she having on that day accidentally received a severe blow on the abdomen, and never felt it from that period; she experienced, however, no

material inconvenience from it, nor did I hear any thing of this circumstance till the time of her labour. The foetus and funis, as before observed, were highly putrid and offensive; the placenta, on the contrary, was perfectly sound, and had acquired its original size, no doubt, from the maternal circulation being continued till its expulsion."

CASE II.—The following case of inverted uterus is published by Dr. Welch, of Chelmsford, in the *Medical and Physical Journal*.

"In July last," says he, "I was requested to attend a young married lady of delicate frame and habit, and who was far advanced in her pregnancy of a second child. Shortly after, I was sent to, and informed she had been unwell some hours, with trifling pains, which her friends were apprehensive would terminate in labour. Upon my arrival, I found the os tincæ open, and the head of the child low down, preceded by the membranes, which protruded in the form of a small bag, distended by the liquor amnii. As her pains had not been strong, but recurred at short intervals, the os uteri had dilated gradually, and the labour advanced slowly; but by rupturing the membranes, the waters were evacuated, and her pains growing stronger, she was, in about two hours after, delivered. On dividing the funis to remove the child, I was extremely surprised to find the uterus completely inverted, and lying without the labia, on the thigh, with the placenta firmly adhering to its fundus; and my patient low and weak, with sickness and frequent fainting fits. I could not but feel sensibly the danger of her situation, of which I apprised her friends, and expressed a wish that a friend of mine in the town (Mr. Bird), who deservedly possesses the highest character for professional abilities, might be also employed; but as he declined any other assistance, I endeavoured to separate the placenta, which was soon effected, and as the vessels did not bleed much, the uterus was returned without any very considerable hæmorrhage; but as her fainting fits and sickness continued with a low and weak pulse, which was at times almost imperceptible, I directed a cordial draught to be given, with tinct. opii et liquor vol. cornu cervi, aa, gtt. xx. and in the course of a very few hours had the satisfaction to find her tolerably easy, more cheerful, and her pulse considerably stronger. On the following morning I saw her, and found she had passed a quiet night, though without sleep; had suffered but little from the after-pains, and was free from fever, but with great languor and debility: her sickness and faintings had not recurred. I directed a continuance of cordial medicines. The next day she was considerably amended, and easier; had slept during the night; had passed urine without pain, and did not complain of uneasiness in the parts. Her pulse was much stronger; and the uterine discharge not more copious than is

usual; nor did she experience a much greater degree of inconvenience than generally results from labour to delicate women; but as she had not had stools, I directed an enema to be administered, which had the wished effect.

"From this time she continued rapidly to mend; and by taking the bark in as light a form as her stomach would bear, was soon enabled to use exercise, and restored to her former state of health.

"On enquiry, I learned the inversion was to be attributed to a naturally lax habit, and the placenta having been too forcibly extracted at a former period; a circumstance I was not acquainted with till some days after her delivery.

"I have the pleasure to add, my patient enjoys good health at present, and feels no particular inconvenience from an accident so alarming, and to which she will most probably be hereafter subject on those occasions."

CASE III.—The following case of an inverted uterus was communicated to Dr. Smellie by a practitioner at Pontefract.

"In April last," says he, "I was called to a woman just delivered of a living, healthy child; and to my surprise found the uterus totally inverted, lying betwixt her thighs, of the size of a large foot-ball.

"The woman's pulse was weak and unequal, and there was a continued pouring forth of blood from the vessels of the uterus.

"I apprised the friends of the great danger of so deplorable a case. Nevertheless, with the approbation of a judicious physician, her neighbour, I undertook, and succeeded in, the reduction; and after gave her gentle anodyne and cordial medicines, and left her in appearance better, and tolerably easy.

"In about half an hour, I was again called, and found her speechless, the pulse imperceptible, clammy sweats, respiration deep and slow, and in a few minutes death closed the scene.

"All the parts were so lax, that the uterus had not the power of contraction; for it was lying like a loose piece of tripe, and taken for an excrescence, till I examined it more strictly, and, after separating the placenta, reduced it into the abdomen."

Giffard, in his *Cases of Midwifery*, also mentions a delivery in which the uterus was inverted, and drawn out beyond the labia pudendi, with the placenta adhering to it.

Chapman (p. 197, case 29) has a case also of the inversion of the uterus.

Monf. Lamotte (lib. 5, chap. 10, 11) describes an inversion of the uterus, and relaxation of the vagina.

Dr. Smellie was called to a woman, who died before his arrival. He found the uterus inverted, pulled quite without the external parts, and the placenta adhering firmly to the fundus.

This misfortune, it seems, was occasioned by the midwife's pulling at the placenta with too great force.

CHAP. IV. PROLAPSUS OF THE UTERUS, &c.

THIS happens when the womb falls down through the relaxed vagina, and appears externally in the form of a tumor.

It has been the common opinion, that the womb is retained in its natural situation by two sorts of bands or ligaments peculiar to it, and that this disorder is occasioned by weakness of those parts; but, from the most particular examination, they appear to have very little sustaining power; and experience shews, that a descent of the womb may happen without any fault of those ligaments.

But, allowing they were affected and their strength impaired, even then the womb could not possibly descend to the external parts, without an uncommon dilatation or enlargement of the vagina; and, on the contrary, so long as that part is endowed with sufficient resistance, no bearing down could possibly follow, although the ligaments had lost their sustaining power.

The principal cause at least of this disorder must therefore be, a preternatural weakness and enlargement of the vagina. Hence it may proceed from any cause which tends to relax the vagina, and render it so weak as to allow the womb, in whole, or part, to intrude or press down through its enlarged cavity: when the first happens, it is called a *descent of the womb*; but if only the last, it is termed a *bearing down*.

In whatever degree this disorder prevails, it will always be rendered worse by the upright position of the body; for then, the weight of the womb rests more immediately upon the affected part. And if, to this principal cause of the disease, other accidental causes are added, such as a laxity of the suspensory ligaments, cough, straining to lift heavy weights, or any violent effort of the body, which acts immediately on the womb, it will then be aggravated, and rendered more difficult of cure.

Agreeably to those circumstances, a bearing down, and sometimes an entire descent of the womb, happens in consequence of hard labours, where the fibres of the vagina have been so overstrained as not to be restored to their natural strength and firmness, especially in women of delicate constitutions; on the contrary, virgins are seldom affected with it, except they are of a habit of body uncommonly lax and weak, or where the womb is in a diseased state.

The *fluor albus* (see vol. II. p. 237) also disposes women to this complaint, because the parts contiguous to the womb gra-

dually lose their resisting power, by the continuance of the discharge, which not only exhausts the strength, but so macerates and relaxes their fibres, as to render them preternaturally soft and yielding.

The disorder called bearing down is generally slight at first, producing an uneasy sensation, as if something was pressing upon the affected part; but, where there is an entire descent, the symptoms are much more severe; for the bladder, being connected with the uterus, is then pulled down with it, and this occasions a difficulty of urine, attended with pain.

This inconvenience may be remedied by pressing up the tumor, when the patient is placed, with her head low, upon a bed or couch, so as to restore the bladder to its natural situation, which is a much more proper and eligible method than that of passing the catheter to draw off the water; since, in this particular case, the instrument would meet with great resistance, and occasion excessive pain and inflammation of the urinary passage.

When the tumor is large, and descends so low as to appear externally, it is apt to swell and ulcerate; but this does not proceed, as generally supposed, from the acrimony or sharpness of urine diffusing itself over the tumor, but from the strangulation of vessels at its upper part, by which the course of blood is obstructed, even sometimes to such a degree as to produce mortification.

The descent of the womb is attended with many circumstances of the most distressing nature to delicate women; who, unfortunately, are most subject to it.

In bad habits of body, there have been instances where it ended fatally, by producing a scirrhus or cancer. In a word, it hinders the regular returns of the menses, brings on fluor albus, prevents conception, and, at last, by perverting the natural functions of the womb, destroys the constitution.

It will therefore be prudent for every woman, who at first perceives a bearing down, to consider it as the forerunner of the disorders already mentioned, which might be prevented by applying for relief before the disease is rendered incurable from its long continuance.

The intention of cure will be, to *replace the womb*, to strengthen and brace up the vagina in particular, and the solid system in general.

When the disorder is of a late date, the two first intentions may be effected by placing the patient on a bed or couch, with her head low, and then gently pressing up the tumor till it is returned into its natural situation. She should afterwards continue, as much as possible, in the same recumbent position; and the cooler she is kept the better. By such means the uterus will

retire from the weakened part, and be relieved from the superincumbent pressure, which it must otherwise sustain from an upright position of the body.

When the tumor is large and of long standing, attended with pain and inflammation, the patient should be bled, and emollient poultices of bread and milk applied twice a-day to the part affected, before any violent means are used to replace it; previous to which, the bowels should be emptied by a purging clyster, and the urine evacuated from the bladder. Should the reduction of the tumor prove difficult, it may be attempted whilst the patient is immersed in a temperate bath, in which she may be placed with her shoulders lower than her hips.

After the tumor has been reduced, the intention of contracting the relaxed vagina, so as to prevent its future descent, may be effected by the frequent use of some astringent injection, and by giving more strength and firmness to the whole bodily system. Nourishing diet, the remedies prescribed in treating on fluor albus, together with the waters of Tunbridge or Spa, will contribute most to this end. The use of the cold bath will also be extremely beneficial, where the lungs and internal parts are free from disease.

This gentle method, pursued with steadiness and patience, will at last generally effect a cure, by restoring the weakened parts to their former strength, particularly as there is a natural tendency in all the solids of the body to contract and regain their usual firmness, when freed from the stress and violence of such causes as before had diminished their power.

Some authors forbid the reduction of the tumor, when ulcerated, till after the sore has been healed; but this practice is neither founded on reason nor experience, for it must be impossible permanently to heal the ulcer whilst the part remains out of its natural situation, and its vessels are in a strangulated state; on the contrary, being replaced, it will naturally heal without any other assistance than that of a little barley water, thrown up as an injection to keep the ulcer clean.

A simple bearing down is sometimes cured by pregnancy, from the effect of which the womb enlarges, and will be gradually pressed upwards and reinstated; however, after delivery, it generally returns with an aggravation of the symptoms. It may therefore be prudent for the patient to keep her bed the longer on that account; and, more effectually to prevent a relapse, it will also be requisite to use the same strengthening medicines as have been directed in the cure of that disorder, and to wear the T bandage a few weeks after her going abroad.

In this complaint all violent efforts of the body should carefully be avoided, such as vomiting, coughing, sneezing, &c. also tight lacing, or whatever compresses the belly and affected parts.

The same regimen as that recommended in fluor albus, respecting air and diet, will be necessary.

The curative method here laid down being directed to the seat of the disorder, is preferable perhaps to the application of pessaries, though the latter are often made use of with good effect.

The objections to the use of these instruments seem to be the following: If the pessary introduced be too small, it will soon be forced away by the first fit of coughing or straining; and if too large, it will become so painful as not to be endured. The utmost attention is necessary, therefore, to adapt the pessary, when resorted to, exactly to the dimensions of the part and the elasticity which the vagina may possess. It is also of consequence that it should be made of the lightest materials, such as cork wood, those of box or ivory being much too heavy to be retained.

Should the disposition to a descent of the uterus be discovered early in any case, so as to prevent the patient from walking without inconvenience, a fine sponge, wrung out of alum-water, may be dried in a compressed state, and cut into any convenient form, so as to be introduced as high as possible. This application will not only act by its astringency, but also by its pressure, though in a much more gentle and uniform manner than any kind of pessary made of harder materials. The sponge, however, should gradually be made smaller, from time to time, as the vagina contracts; and a T bandage may be worn, the better to retain it, and to secure the patient from a relapse.

The following cases, recorded by Dr. Smellie, whilst they convey his opinion as to the use of the pessary, are at the same time desirable, as shewing the consequences of prolapsus under urgent circumstances, and pointing out the treatment required.

CASE I.—This misfortune happened to a woman soon after a tedious labour, which gave her great pain. A round middle-sized pessary was introduced, and turned so that the lower edge rested at the lower and back part of the vagina, betwixt the os externum and fundament, while the upper edge was supported against the inside of the os pubis: the mouth of the womb lay against the lower edge of the round hole of the pessary; this kept up the uterus and vagina, and relieved the complaint. Two or three months after she was with child, and when five months gone, the pessary was taken out, because it was thought needless to keep it there any longer, especially as the uterus was so large as to be supported by the upper part of the pelvis. The pessary, instead of lying in the same position as when first introduced, was found lying up along the back part of the vagina, which it kept up, and the mouth of the womb hung down on the fore part of the pessary. This circumstance gave the first hint that a pessary introduced, and laid in this position, was the best method

of keeping up the uterus; for, if the vagina is kept up, the uterus must in consequence be kept up also. The upper part of the vagina is attached round the lips of the mouth of the womb, and as the uterus naturally sinks down into the vagina, one great advantage to married women is, that this method does not hinder them from cohabiting with their husbands. After the pessary was withdrawn, the prolapsus of the vagina returned, and occasioned the former uneasiness. It was again introduced, and laid up along the back part of the vagina as in the last method, which kept up the vagina as before, until she fell in labour, and then it was forced out at the beginning of the pains. She was at last safely delivered. The vagina on the fore part, at the os pubis, was very lax, and came down before the head of the child; but by cautious management it was kept up till the head came along, and then it was slipped behind the same. She continued to recover very well till after the fifth day, and suckled the child; but an accident happened in the family, which threw her into violent agitations; a vomiting and looseness ensued, the lochia and milk disappeared, and she died in five days after, though the vomiting and diarrhoea were restrained.

CASE II.—This was a case of prolapsus uteri, in a woman with child, delivered in the middle of the seventh month.

A middle-aged woman had a prolapsus uteri. She had been formerly delivered of a child or two at the full time, and after that miscarried twice, about the third month each. She again was pregnant, and at the end of the second month had a small discharge of blood from the vagina. She was blooded, and kept her bed several days, by which it was restrained. The same discharge returned the third and fourth month; at first in large quantity, but the last very inconsiderable. "Being called to her a fortnight after," says Dr. Smellie, "or about the middle of the fourth month, I found her in violent pain. On examining, I found the uterus was pushed entirely out of the os externum, bigger than a man's fist. This had been occasioned by a violent fit of coughing. The vagina felt as if it was about an inch protruded before the os internum; and all the vagina appeared to be inflamed and swelled. I introduced my finger at the protrusion of the contracted vagina, which was just large enough to receive it a little way: but I could neither distinguish the os internum, nor any substance contained in the uterus. It might have been the os internum opened, but of this I was uncertain: from hence it seemed probable, that she was not with child. The prolapsus was reduced with some difficulty; two days after, a round middle-sized pessary was introduced, and fixed up along the back part of the vagina; so as that the upper part of the vagina and os internum hung down before it. She had:

before this period, for two or three months, a large discharge to appearance of the fluor albus, and the uterus had prolapsed in that space three or four times; but being then smaller, she could easily reduce it herself. It being uncertain whether she was with child or not, although, from considering all the former circumstances, the last seemed more probable, it was resolved to order only a cooling regimen with some saline draughts, and nitrous medicines till the next period. By these means the cough and discharge of the fluor albus were removed; she seemed to be perfectly easy, and was allowed to walk about in the house. At the end of the fourth month she had to appearance a regular discharge of the menses: the mouth of the os internum felt swelled and more shut; a circumstance which made it almost certain that she was not with child. Being sent for in great haste, about the middle of the seventh month, I found she had regular labour pains; the os internum was so open that the membranes, waters, and head of the fœtus were regularly felt; and there was no discharge of blood. As the os internum, though a little open, instead of being thin or soft, felt thick and hard, it was advisable to order first bleeding to the quantity of eight ounces, after that two emollient clysters were administered, which discharged a large quantity of fœces, and then an anodyne draught was given.

“The salt of wormwood draughts were repeated with a cooling regimen; such as panadas, weak broths, emulsions with sal. nitri, and boiled chicken. The pains went off for twenty-four hours, after which they returned; the os internum now felt much more open and soft; the membranes were pushed down with the waters. It was then more proper to let the labour go on. The fœtus was soon delivered: after which there was some discharge of blood. No violence was used to bring away the secundines. As the placenta separated from the uterus, the discharge increased, but not to any large quantity; and in three hours the secundines were forced through the os internum into the vagina. By pulling softly at the funis, and at the edge of the placenta, with two fingers, they were easily extracted. She recovered very well. She had for two days some difficulty in making water, but that complaint went off. The child was very small, and was reared with great difficulty.”

CASE III.—This case of a prolapsus uteri, which could not be reduced, but mortified, was communicated by a surgeon of Birmingham to Dr. Smellie:

“I was called,” says the writer, “to a woman near this town. I found her in bed, and she gave me the following account of her case. That assisting her husband in lifting a weight that afternoon, she felt a lump fall out of her body; on which she sent for a midwife, who endeavoured to restore it into its place; but not

being able to reduce the same, advised to send for me. Upon examination, I found the uterus out of the os externum, about the size of a large man's fist, hard, and the glands schirrous, each having the exact appearance of a garden bean. The patient was low and faint; had but little pains. As a reduction was impracticable, I immediately directed emollient and discutient fomentations with poultices, and after some days bled her in a small quantity, for she was too weak to bear the loss of much blood. Her body was kept open, and, when restless with pain, quieted with opiates. Notwithstanding these it increased in size, and after three weeks discharged a thin ichor from its whole surface, and in about six weeks the patient died."

CASE IV.—The following case of a prolapsus, attended with mortification of the uterus, was communicated by Mr. Primrose, of Wrentham, lately, in a letter to Dr. Haughton.

"The woman who affords the following subject," says Mr. Primrose, "before she became pregnant, laboured under a partial prolapsus uteri, the appearances of which gradually subsided when she became pregnant; and during her latter months complained of nothing more than forcing pains towards the os sacrum (I ought to observe that this woman was of a very weak constitution, and that this child was her tenth); her labour came on suddenly, was a breech presentation, but the natural pains were quite sufficient for its completion. After waiting the usual time after delivery, and no pains following, I was induced to examine; upon which, to my surprise, I found a considerable protrusion of the uterus, which led me to send for my father, who advised me to attempt the extraction of the placenta by introducing my hand, with a view to extricate it; at the same time my hand assisted the return of the uterus, by pressing at the fundus, during the time that my left hand was assisting the separation of the placenta at the funis. From there being such a considerable adhesion of the placenta, I did not succeed in obtaining all of it the first time; on proceeding to make the second attempt (which we thought justifiable, not only for the obtaining what remained of the placenta, but with a further view that the return of the uterus might be effected by the hand being carried to the fundus), to my great astonishment I found a descent of the whole body of the uterus; after this the patient gradually sunk: however, attempts were immediately made for its reduction, as far as were thought prudent, as the woman appeared almost exhausted. She did not revive sufficiently to encourage me to make further attempts till gangrene had made its appearance, which was in the space of forty-eight hours.

"Had this woman not sunk so immediately after the second descent, I am sensible I could not have succeeded in the reduction; not only from the protrusion being so considerable, but

from the firmness, or tension, being so great as not to yield to compression. Mortification and putrid fever increased rapidly; fomentations, &c. were ordered, and the patient was supported with bark and every requisite cordial, and fomentations were continued till suppuration took place, which was complete, in the greatest portion of the prolapsed part, in seven or eight days; what remained discharged a great deal, and gradually wasted, as her health improved, and what remained at last spontaneously retracted.

“It is five or six months since this woman was under my care; and I have now the satisfaction of adding that she enjoys much better health than before she became pregnant.”

CHAP. V. INFLAMMATION OF THE PUDENDA AND NEIGHBOURING PARTS.

AMONGST the consequences of severe labour, are the inflammation of the parts concerned, followed sometimes by suppuration and yet more formidable appearances. To the young practitioner the hints contained in the following cases, by Dr. Smellie, may not be unacceptable, even though the treatment be not exactly conformable to the practice of modern times.

CASE I.—A woman complained, after the third day, of a pain and hardness in the right labium pudendi. On examining and enquiry, the doctor found the swelling and pain began to be perceived only the night before. He ordered fomentations to be applied, wrung out of a decoction of poppy heads and emollient herbs, and to be repeated frequently. In the intervals he directed the attendants to anoint the parts with ung. sambuci, by which method the swelling subsided, the pain abated, and in four or five days disappeared entirely.

CASE II.—The day after a severe and tedious labour, the external parts of a woman in her first child were so excessively swelled, that she could neither make water nor go to stool, although she had an inclination, and had tried frequently. The same method was taken as above, only, instead of the emollient ointment, a large poultice of bread and milk was applied and renewed after each fomentation. Next day the swelling was so abated, that the patient made water freely, and went to stool; and the whole complaint, by the continuance of those applications, went off by degrees, so that the woman recovered.

CASE III.—“I was called by a midwife,” says Dr. Smellie, “to a woman, the fifth day after delivery. The labour had been tedious and severe, occasioned by a large child; the external parts were very much swelled and livid; the pain from the inflammation had been very great, but was then a little abated; a circumstance which

made me afraid that she was in danger of a mortification: however, I was in hopes, from her having had a plentiful discharge of the lochia, which still continued, that the uterus was not affected. She had also made water several times, although with difficulty; but had no stool. After she was relieved by a clyster, I ordered a fomentation, with which the parts were frequently fomented. An emollient cataplasin of bread and milk was applied; after every fomentation the swelling and pains abated more and more. About the ninth day several mortified sloughs cast off, both from the labia and vagina. The cataplasms were continued, and a large dossil of lint was kept in the vagina, to prevent contraction, or a coalition of its sides. The patient recovered."

CASE IV.—This was an inflammation of the uterus and neighbouring parts.

"Being called," says Dr. Smellie, "to a woman on the third day after delivery of her first child, and finding that she complained of much pain and hardness above the pubis, I examined the abdomen with the hand below the bed-clothes, and found the substance of the same harder and larger than it usually felt. I was certain that it could not be from any distension of the vesica urinaria, because she had made water frequently. I was told that the labour was long and tedious: that she had in time of it pressed her belly against the lid of a high chest; that she complained of the pain immediately after delivery, and was in torment ever since.

"I was much surprised to find that, although the pain had prevented sleep, yet there had been and still was a plentiful discharge, and but little fever. I imagined that the complaint proceeded from the external parts that had suffered from a contusion, by the imprudent forcing them against so hard a substance: her pulse being a little quick, she was blooded in the arm to the amount of about six ounces. An emollient clyster gave her a plentiful stool; the abdomen was fomented, and a poultice was laid all over the abdomen.

"These were the only remedies then to be had. I gave her ten grains of the pil. Matthæi; she had a pretty good night; but when the effect of the opiate was over, the pains returned in the morning. The abdomen was again stuped with a decoction of the emollient herbs, and a cataplasin of bread and milk applied. These were repeated twice a-day, and in two days more, the pain, tension, and hardness, abated, and the patient recovered."

CASE V.—In this case an inflammation was supposed to exist in the right ovary and ligaments of the uterus.

"I was called," says the doctor, "to a woman on the fifth day after delivery. She told me, that the midwife gave her great pain in tearing (as she called it) the placenta from her right side; and that she had sent for me to examine a swelling there, which she felt with her hand. She was a lean woman: I felt the uterus contracted

like a round ball, but on the right side a substance about the size of a goose egg; from this proceeded a round and long substance, about the thickness of two fingers, which ended at the groin of that side: the examination of these particulars gave her great pain. Much the same method was used to this woman as in the former case, viz. venæsection, clysters, fomentations, and emollient cataplasms; besides proper management as to her diet and regimen, and keeping her in breathing sweats. The swelling on the right side diminished; but she was not free from pain till after the twentieth day."

CASE VI.—This is another instance proceeding from much the same cause.

"A gentlewoman in her second child," says Dr. Smellie, "had been delivered by a male practitioner, who gave her great pain in delivering the placenta; and this had continued less or more afterwards. I was bespoke to attend her in the next labour, when she had an easy time; the placenta came down of itself, but, in order to satisfy her and myself, I introduced my hand into the uterus to examine. I found all sound on the inside; nothing of any kind of tumor, hardness, or unequal contraction, to account for the violent pains that she formerly complained of. By proper care and management she recovered, and was free of her former pain for four weeks, which afforded great hopes of a perfect cure; but it afterwards returned with as great violence as before.

"I have delivered her three times since, and her labours have been safe and easy. She was always free from the pains for three or four weeks after. It is also remarkable that she was always easier when with child.

"The pains were mostly on the right side towards the groin, but they extended quite round her back and loins. The principal physicians in London were consulted from time to time; and she tried many different remedies, including the cold and hot baths, with all kinds of anodynes and evacuations, but she was not in the least relieved; neither could any of the profession find out the cause of the excruciating pains, which in general passed for a nervous rheumatism.

"Finding her free from these pains after delivery when she kept in bed, and before she went abroad, I, after the next delivery, kept her longer in bed, and in breathing sweats; but, notwithstanding this caution, the pains returned, and did not abate of their violence till she was again with child."

CASE VII.—The following case of psoas abscess succeeding labour is communicated by Dr. Denman to the editors of the Medical and Physical Journal.

"In July, 1798," says the doctor, "I was desired to visit a lady, of whose case I received this account:—

"On June the 10th she had been delivered of a dead child,

between the seventh and eighth month of her pregnancy, when she suffered very acute pain in the extraction of the placenta, which was thought necessary. For several days previous to her delivery she had a considerable degree of fever, and much general uneasiness over the abdomen, for which she was bled, and took some cooling and quieting medicines. On the 12th (the second day after her delivery), she had a strong and violent rigor, succeeded by very severe pains in her left side, near the spine of the ilium, and fever, which continued for several days, when her milk (before secreted) entirely disappeared.

" Though the pain and fever were abated, they never entirely left her: and after another rigor on the 19th, with an increase of fever and pain in the part first affected, her friends were alarmed, and a physician of eminence was desired to see her. He prescribed what the situation and circumstances of the patient seemed to require, and she was much relieved. There were, however, frequent exacerbations of fever; the pain of which she originally complained never entirely left her, and was sometimes violent. It was now perceived she had no power of moving her left leg or thigh, and she herself was sensible of a deep-seated swelling on the left side of the abdomen, though it could not be discovered by her attendants. A blister was applied to the whole of the pained side; and after some days' farther attendance the physician withdrew, recommending her to go into the country, and encouraging her to hope that, as she recovered her strength, her complaints would leave her. She was also advised to use as much exercise as she could, and accordingly attempted every day to walk with a crutch, and the help of her nurse; but every attempt gave her excruciating pain, and she was daily sensible of losing, instead of gaining, strength.

" I first saw her on the 28th of July. As there was an evident fulness on the left side of the abdomen, with much pain on pressure, loss of appetite, and other symptoms of fever, from some degree of which she was, in fact, never entirely free, I directed three or four leeches to be applied to the part affected, and to be repeated every other day, and such medicines as were likely to abate the fever, to keep the bowels gently open, and to moderate the pain. She was somewhat relieved by these means; and as she was very weak, I tried the bark, and some other tonic medicines, from which she did not apparently receive any benefit. From the contraction and wasting of the limb, and from the other circumstances before recited, thinking it probable that an abscess had begun to be formed in some part of the cavity of the abdomen, I requested to have a consultation, and Dr. Baillie was called in. After a mature deliberation on all the preceding circumstances, and the present state of the patient, it seemed most reasonable to think that an abscess was forming in the psoas muscle. Small doses of cicuta in the saline draughts were prescribed, and a soft plaster with opium was applied to the

side ; the case of the patient seeming to admit of little other relief than some alleviation of her suffering. In the middle of August she returned to her house in town, not in any respect amended in her general health, and she suffered more from her local complaints.

" In a few days after her arrival in town, the pain being much increased, she went into the warm bath, and on the following day she was suddenly relieved by discharging a very large quantity of purulent matter, mixed with her urine. This was considered as a proof that an abscess had been formed, and discharged into the bladder, probably by means of an adhesion which had taken place, and a subsequent communication between this and the part first affected.

" She continued to go into the warm bath for a few days ; but suspecting that she was weakened, and feeling herself very much fatigued by it, she relinquished it altogether. At this time her medicines were changed for some of the milder turpentine, in small doses ; and still suffering considerable pain, opiates were given, and repeated as the case required.

" When there was the greatest quantity of purulent matter discharged with the urine, and sometimes I think there could not have been less than four ounces at a single evacuation, she suffered the least pain ; but when there was a suspension of the discharge, the pain was always most severe.

" In the beginning of September, a swelling of a considerable size, with an evident fluctuation in it, was discovered on the inside of the thigh, without any appearance of inflammation or redness of the skin, as if the fluctuating matter had been formed there ; and, by a careful examination, the course by which the fluid had descended from the groin to the thigh could be readily traced. The swelling gradually descended till it came very near the ham, varying in size, according to the position of the limb and body, and the patient thought she could distinctly perceive both the descent and rise of the fluid.

" The night-sweats, and other hectic symptoms, were now extreme ; but, after a trial of the bark, and other medicines of that class, which disagreed, she for many weeks took no medicine whatever, except small doses of opium, when the pain was violent, and some gentle laxatives, when she was costive. She was allowed to drink porter at her meals, and at any other time, without restraint, when she wished for it, and always considered herself not only supported, but very much refreshed, by its use.

" In October she kept her bed altogether, unable to move, or help herself in any position, and frequently suffering much pain. I then proposed a consultation with Mr. Cline, the surgeon of the family, to consider the propriety or expediency of making an opening in the tumor in the thigh, and, by giving it an inferior vent, to prevent the matter from returning into the abdomen. Mr.

Cline did not then think it justifiable to make an opening in the tumor, and I readily acquiesced in his opinion.

“ At the latter end of this month, she was reduced to a state of extreme weakness, and exceedingly emaciated; but her appetite, which had never entirely left her, now began to improve. The tumor in the thigh daily lessened, and soon disappeared altogether; as did the quantity of matter discharged with the urine, till that also entirely ceased. In November she frequently voided small quantities of blood with her stools, and at the latter end of that month her health and strength were considerably improved. There was also, about this time, a return of some power of moving her limb; she soon became able to walk with crutches, the infirm leg being supported in a stirrup; and she had a return of the menses, which had not before appeared since the time of her delivery.

“ On the 20th of December she was lifted into the coach, for the benefit of taking the air; and her health might at this time be said to be restored, as she had no complaint, and, though weak and emaciated, was every day sensible of amendment.

“ In the beginning of the year she again proved with child, and went on to the full period of pregnancy, when she was safely delivered of a healthy boy; having recovered, before the time of her delivery, the perfect use of her limb. She now walks, and performs all the offices of life, with her accustomed ease, and has not the least remaining token of the complaint from which she had so severely suffered.”

CHAP. VI. OF THE DROPSY AND OTHER AFFECTIONS OF THE OVARIA.

IN the number of those diseases which the skill of the physician or the hand of the surgeon is not able to cure, may be counted those dropsies peculiar to females which originate in the appendages of the uterus. These dropsies are not unfrequent. They may be divided into those in which the cysts are single, or in which they are more in number, accompanied with hydatids more or less in quantity, and those where the parts are enlarged so as to be an inseparable mass of tumors.

Of female dropsies, cases may be concluded to be proper for the operation to be proposed, if no very considerable tumor or induration be found after the first tapping, on examining the abdomen.

In order to favour the cure, it is to be wished that the first operation be performed before the enlargement is to a great degree. It is desirable also that the second tapping, accompanied with the operation of dividing the cyst, should be performed in a state of moderate distention, in order that the sac in a collapsed state, which the operation will reduce it to, may be less inconvenient in proportion to its size.

In the Medical and Physical Journal, we have the following account of the cure of the ovarian dropsy, where the cyst is single, by means of incision in the cyst; thereby procuring a similarly favourable event in all such cases, to that which an accidental rupture of the cyst sometimes produces, communicated by Mr. Bernard, of Southampton.

The operation proposed, is, to make use of the common trocar with a canula adapted to it (see pl. XII. fig. 41), in which canula there is to be a slit or groove, as in fig. *a*. Immediately after puncturing with the common trocar it is to be withdrawn, and before the exit of any considerable portion of the fluid a blunt trocar is to be introduced, fig. *b*, in which also is a slit or groove corresponding with that in the canula. In this groove is placed a bistourie cachée, fig. *c*, turning on its centre, in order to depress or elevate a lancet point through the opening in the canula to the height of one twelfth of an inch or thereabout from the surface of the canula. The lancet point being depressed in the groove for introduction, the operator changes the position of the instrument thus introduced through the abdominal coverings and sac from their course or direction, at first to a position which shall make the handle of the instrument lie in contact with the skin, and so that the groove or slit shall be in a line with the surface of the abdominal coverings, so that an immediate contact with the groove in the canula is the sac interposed betwixt it and the abdominal coverings, which by the hand of an assistant are to be pressed so as to fix more firmly the groove in contact with the sac. The lancet point being elevated by the thumb of the operator (by which it can be raised or depressed), the blunt trocar containing the lancet is to be withdrawn, to make in its course an incision of the length of the slit, about two inches in the cyst. The lancet point, when it has gone the length of the slit, must be again depressed to be withdrawn.

"The operator," says Mr. Barnard, "may, after this, permit the flow of more or less of the fluid as he judges proper. I should think a portion of it may as well be detained.

"With respect to the success of the operation, my idea is, that the lips of this incision can never again come in contact with each other, so as to unite and detain the secreted fluid, which being therefore admitted into the cavity in which the cyst is contained, will be taken up by its absorbents, and the patient be exempted from immense accumulation, or repeated tapplings, from either of which death follows in a few years.

"I have completed, in my own mind, for a long time, and provided myself with, the instrument above described, being satisfied that it is a preferable method to any hitherto proposed, whether by injecting a fluid into the cavity or introducing a seton."

In the same work we find the following description of a remarkable enlargement of the ovaria; communicated by Dr. H. Vanden Bosch, of Wageningen.

CASE I.—"In the month of July, 1797," says the author, "I was desired to attend D. Janfen, a poor woman, who was supposed to be dropical. She appeared extremely emaciated. Her abdomen was amazingly large, hanging down to her knees, and measuring rather more than four feet eight inches in circumference. She complained of great weight and pain in the lower part of the abdomen and backwards just over the right hip. Upon enquiring into her history, that I might ascertain the cause of this singular appearance, I learned that about five years ago, while she was with her husband, who was a soldier in garrison, she perceived a tightness in the lower belly, and a hardness which gradually increased; so that, upon removing to town, she consulted some females, who pronounced her to be with child; the midwife not only confirmed their opinions, but assured her that she would have twins. But these assurances proved fallacious.

"In the severe winter 1794-1795, she was compelled to remove to Weefop, where she was seized with a violent fever, which was accompanied with an alarming hemorrhagia uteri; but upon her recovery, the abdomen began to enlarge very considerably. Her anxiety increasing, she consulted the faculty at every place where she came; but with no success. Nor had the paracentesis abdominis, performed in the year 1796, by the surgeon-major of the regiment, any better effect than the medicines she had used. Not more than two cupfuls of a gelatinous fluid were discharged from two openings that were made.

"Notwithstanding the greatness of the distension, the uterus was not enlarged. She was seldom feverish; nor, when she sat still and composed, was respiration difficult. Motion became gradually more troublesome to her, till at last it was impracticable. She had her monthly courses regularly; there were seldom indications of a fluor albus: the urine was often discharged with considerable pain, and it had a lateritious sediment. In short, all the natural functions were much less impeded, even to the day of her death, than might have been expected.

"All the above symptoms, united with the ill success of the paracentesis, induced me to suspect that the distension proceeded from a tumor, degeneration, or dropsy in the ovarium; and, accordingly, I had recourse to palliative medicines. The distension increasing, I wished her to submit to a second operation, under the idea that extreme pressure might occasion a kind of symptomatic dropsy; but as I could not promise success, she refused to comply.

"A self-sufficient surgeon in the town, who assured her of a cure, and abused me for trifling with a complaint that was so easily remedied, obtained her consent. He undertook the operation in January, 1798, and after three openings could not draw off more than about a quart of fluid; he tried various medicines, but in vain. Of consequence she lost her confidence in him, and my

assistance, was again requested. I did my utmost to alleviate her misery, till the month of July, 1800, when she expired.

"I was prevented, by severe indisposition, from opening the body; but, foreseeing the event, I had desired my friend Mr. F. H. Hartog, a medical pupil in the university at Utrecht, to perform the operation, and communicate to me whatever appeared worthy of notice. My friend performed this office with skill and attention, and transmitted to me the following important discoveries, which fully justified my conjectures. I shall relate the particulars in his own words, premising only that the envelope of the abdomen, which had long been supported by a suspensorium, measured in the month of July, 1800, somewhat more than two ells and a half in length.

"Upon placing the body on the table, the abdomen appeared of an enormous size. It was about five feet and a half in circumference. It was hard to the touch; and various lumps or knobs were easily distinguishable. The navel was of the size of a fist. On the right side, the belly was more protuberant than on the other. Upon making an incision through the skin, we observed that the cellular membrane between the cutis and the muscular parts on the left side was very thick, and seemed a kind of saponaceous substance; but on the right side there were scarcely any traces of this membrane. The muscles on the left side were of the natural size; on the other they were thin and emaciated. Upon opening the cavity, about sixteen pints of slimy and offensive matter issued out from the parts just above the umbilical region.

"The intestines were mostly in the upper part of the abdomen. A large, irregular, and preternatural substance occupied almost the whole of the remainder. This was taken out, being separated from its union with the vagina, uterus, &c. that we might more minutely examine the state of the body as well as the substance itself. The liver was in a natural state. The bile in the gall bladder was thicker and of a deeper colour than is usual. The spleen, pancreas, and kidneys, retained their form and consistency; the ureters were, at their origin, more expanded than is natural. The smaller intestines were not injured; the larger, particularly the colon transversum, were distended with feces and air: the larger vessels were as usual. The lungs were remarkably red, but appeared in a sound state; as also the heart, though it was replete with blood, which poured in large quantities into the cavity of the thorax, when it was opened.

"The misformed substance had a red fleshy appearance; it was covered with a very thin membrane. On the right side it was prominent, and was somewhat excavated on the left. It seemed to be composed of several pieces of a sub-globular form, which were separated from each other by fissures or grooves, from four to five inches in depth, but adhering to each other at their basis. They resembled the gyræ observable in the cortical substance of the brain. This substance was eighteen inches in length, and about nineteen

inches in diameter. In the middle of this body, rather towards the right side, was a saculum, formed of a thick membrane. This cavity measured seven inches from beneath upwards, and five in depth; but it had no communications. It contained nearly five pints of mucilaginous matter. It was surrounded by the subglobular bodies mentioned above, which, upon mature examination, seemed to consist of a hard fleshy substance; and in some places a substance resembling the *materia adiposa* was perceived. One thing observable in this sac was, that its internal surface was not smooth and even, but had various irregular filaments running across it, in different directions. Towards the lower part of the cavity, but nearest to the upper surface of the body, three small cavities were observable; these contained a much thicker fluid than the other part. The ureters ran in grooves behind this substance; their opening into the *vesica urinaria* was natural. This viscus, being strongly attached to the inferior part of the substance, was much compressed, contained very little urine, but several red particles, with which the urethra was also filled.

‘ The uterus was more oblong than usual, and inclined towards the left side, as did also the vagina; but they appeared in a sound state.

‘ The right Fallopian tube was open from its origin to the distance of about three lines from the uterus, where it became obstructed, and strongly adhered to the preternatural substance. Every trace of it was now lost, nor could a natural ovarium be perceived. The left Fallopian tube was perfect, and open through its whole length; the *fimbriæ* also were easily distinguished. This tube, however, was firmly attached to the cartilaginous part of the large body. This cartilaginous mass was also composed of several large knobs; and some of them were about four times the size of my fist. They adhered so firmly at their basis, that they were separated with difficulty. No ovarium could be discovered on this side.

‘ The weight of this great misshapen body was not less than one hundred and two pounds. As there was no appearance of ovaria, either on the right or left side, and as the tubes on each side were incorporated with this substance, I do not hesitate to pronounce that this was a *degeneratio ovariorum*; and that the ovaria adhering and growing together, formed themselves into this enormous mass.’

CASE II.—The following case of a lady was given to Dr. Denman, by Mr. Thomas, surgeon, of Tunbridge Wells, who had attended her from the commencement of her illness. It is published in the *Medical and Physical Journal*.

This lady, who had had several children, was brought to bed in January, 1798; and had perfectly recovered her health. She menstruated regularly till the following June, when she became

sensible of a pain in the right side of the abdomen, near the groin, which, though not violent, prevented her from lying with ease, or sleeping on that side. About the middle of January, 1799, she was suddenly seized with a violent pain in her bowels, tension of the abdomen, and much soreness on pressure, accompanied with vomiting, constipation, and frequent faintings. These complaints were relieved chiefly by clysters and gentle purgative medicines, but not entirely removed without many repetitions of them. Before this attack, she had been much weakened by profuse discharges of blood from the uterus, and about ten days after she suffered very violent pain in the lowest part of the back, seemingly near the extremity of the sacrum, which joins the os coccygis, extending to the loins and across to the hips, especially the right, and down that thigh. The slightest pressure on the sacrum, or hip, brought on excruciating pain in all the neighbouring parts, which continued for several minutes after the pressure was removed. This pain was considered as the sciatica, and it was relieved by the warm bath, and the occasional use of opiates. By a return of uterine hemorrhage every six or eight days, together with loss of appetite and want of rest, she became extremely weak, irritable, and emaciated. On every return of uterine hemorrhage the pains in the back were much increased, as they also were by the evacuation of a costive stool, for which reason clysters were daily injected. She never had much difficulty in voiding her urine, but frequent inclination to do it; yet there never was in it any distempered appearance.

About the middle of February, she could bear to be turned from her back to her side; but at those times she felt as if some heavy substance was contained in the abdomen, which shifted its place as she was turned. After a confinement of six weeks to her bed, the painful symptoms were mitigated, she was able to sit in a chair, with her feet raised high and her knees drawn up; but she was soon obliged, by the pain in her back, to return to a recumbent position; nor was she able to suffer her right leg to approach the ground or bear the least weight upon it.

Her health and strength, however, gradually improved, and in March she was able to move and walk a little; but, instead of her former complaints, there was great tension and pain above the os pubis, and the whole hypogastric region was full and hard, but not fore to the touch, except on the right side, where the hardness was first perceived. One day about this time, while she was in the warm-bath, she discovered a large and hard tumor, extending to the right side of the navel, the increase of which was so rapid, that in the course of a few days it occupied the whole abdomen. She was then freed from pain in all the parts contained in the pelvis, could turn herself in bed, and lie on either side, and not only move her legs, but walk much better. She

frequently after this had slight shivering fits, and a sense of coldness down her back, followed by restlessness and feverish heat, especially in her hands and feet in the evening, which went off with a free perspiration towards morning. Her pulse was at all times very quick.

Though one or more stools had been regularly procured every day, an immense quantity of hardened fæces, of a large volume, were now discharged for three or four successive days, by which her size was much lessened. She was soon after able to bear a journey to London, her friends being solicitous that the nature of her complaint should be ascertained, as there had been various opinions and representations made of it, by different gentlemen who had seen her in the country.

"On Sunday, March 31st," says Dr. Denman, "I visited this lady, and, as it seemed of principal importance to discover, in the first place, the seat and nature of her disease, it was necessary to be particular in my enquiries and examination. The whole abdomen was distended by a circumscribed tumor, evidently connected with, and springing from, the right side, near the groin; thence extending across, and high up in the abdomen. This tumor, though not perfectly uniform over its surface, was distinctly circumscribed, and I thought I could perceive an obscure fluctuation in it. I could also feel an angle of the tumor in the posterior part of the pelvis, by which the os uteri was projected so high and so forwards, as to be almost beyond my reach; as is the case in a retroversion of the uterus. I could also ascertain that she was not pregnant. I did not therefore hesitate to give my opinion, that it was a dropsy of the ovarium; and by supposing this, early in the disease, to have dropped low down into the pelvis, and afterwards to have risen according to its increase, all the symptoms which had occurred in the course of the disease could be satisfactorily explained.

"Having represented my opinion to the patient and her friends, though I could give but little hope of the disease being cured, I freed them from the fear and solicitude of any immediate danger.

"The following draught was the only medicine I advised:

(No. 18.) R Flor. chamæmel. pulv. gr. xv.

Rad. rhei pulv. gr. v.

— zingiber. pulv. gr. iij.

Aq. ment. fativ. unc. ij. m. f. Haustus.

Sumat ter quotidie.

"On the following day she informed me, that, after suffering considerable pain in the bowels, she had had four or five copious motions, and that after every motion she was sensible of her size decreasing. The motions were unusually offensive, and, before they came away, the desire to expel them was unnaturally urgent

and painful. On examination of them, I found that they almost wholly consisted of a gelatinous fluid, with many streaks of blood, and with little or no mixture of fæces.

"The same medicines were repeated.

"On Tuesday, after several other motions of the same kind, the distension of the abdomen was lessened more than one half, and, instead of feeling weakened by the evacuations, the patient felt herself very much relieved, and cheered with the prospect of a speedy recovery. She took a sufficient quantity of nourishment, and continued the same medicine.

"On Wednesday, I had nearly the same account of the number of motions, and of the gradual decrease of the swelling of the abdomen, which was now, in fact, wholly gone, except that I could feel the small tumor formed by the cyst, in which the fluid had been contained.

"On examining this day *per vaginam*, the os uteri was found to be descended into its proper situation, and no tumor whatever remained in the cavity of the pelvis. The patient, in short, felt and considered herself as well, in which sentiment I encouraged her; concluding in my own mind, that, in consequence of preceding inflammation, an adhesion had taken place between the cyst of the tumor and some part of the intestine, probably the rectum, the adhering portion of the bowel had given way, and, by that opening, the contents of the tumor had been evacuated.

"At my request this patient staid in town for a month, at the end of which time I saw and examined her again; but I should not then, either from the state of her health, or any thing I could discover, have suspected her ever to have suffered from any such complaint as that I have been describing."

CASE III.—"The following case of an extraordinary enlargement of the abdomen, owing to a fleshy encysted tumor, was communicated by Dr. Pultney to the Medical Society of London.

"Mrs. M. was sprung from parents who both died dropical; and she had a dropical tendency in her constitution for several years before the disease seemed to originate, which proved fatal to her. She was married about the age of twenty-six, but had not borne children. She had been subject to hysterical affections, but had in general been remarkably regular in the natural evacuations of the sex; and continued so to nearly the last period of her life.

For more than three years before her death, this lady began to be subject to pains of a very excruciating nature, on the left side of the belly, which often attacked her, and sometimes brought on violent spasms and hysterical fits, which not unfrequently held her for several hours. The violence and frequency of these fits, by degrees, abated; but all the symptoms of a dropsy advanced very fast, and a weight and tumor, which for some time had been perceived on the left side, became more manifest. It was ~~ma-~~

gined that water fluctuated in the abdomen; and, though this might probably be the case in the earlier stage of the disease, yet the seat of the pain, and the circumscribed nature of the tumor from the first, strengthened the suspicion of an enlarged ovary, and announced an unfavourable prognostic very early. The swelling gradually enlarged, and in the space of a year the whole abdomen became hard, while the tumefaction of the cellular membrane in general subsided; and the body and limbs (except the ankles, which had ever been subject to swell) became gradually emaciated, and, finally, to an extraordinary degree.

"During the greater part of the years 1785 and 1786, notwithstanding the vast bulk of the body, she was able to take the air in a carriage, and almost daily to walk a little way; and her general health was considerably better than in the early state of the disease. Towards the latter end of 1786, however, the legs swelled enormously, broke, and discharged; but without any signal benefit, or diminution of size in the body. For near a month before her death, the mouth and fauces, as has been observed in similar cases, became highly aphthous; and this affection gradually increasing, she sunk under her accumulated calamities, and died January the 30th, 1787, in the 45th year of her age."

The following were the appearances on opening the body:

"Upon puncturing the abdomen with the trocar, a small quantity of a glairy light-brown coloured liquor issued forth. After the integuments were laid aside, there appeared an immense tumor, occupying the whole cavity of the abdomen, and which, from its bulk, had in an extraordinary degree deranged the situation of the viscera; all of which, though they appeared not to be in a diseased state, were, from the total loss of fat, apparently much reduced from the natural size. The pressure upon them had been so great, that it afforded matter of curious speculation how the economy of life had been carried on so long, under so great an oppression and derangement.

"The tumor itself was nearly round, and did not adhere to the parietes of the abdomen, unless here and there by slight fibrous connections; but at its origin in the pelvis, it was firmly connected with, or seemed rather to proceed from, one of the broad ligaments; and no trace of the ovary could be distinguished. The uterus was stretched, and spread in an elongated manner on one side of the tumor.

"This large body was of a fleshy nature; and in some parts of a scirrhus-like, and almost tendinous, hardness. It was made up of a congeries of smaller tumors, from the size of a nutmeg to that of an egg; and many were much larger. These were closely compacted, and intimately united to each other: each, however, being a separate cell, or cyst, with an extremely thick fleshy coat, containing in its cavity a small quantity of the glairy

fluid before mentioned. In some instances these cysts seemed to communicate with each other, in others not so; the whole suggesting the idea that they had originally been hydatids, the coats of which had been gradually thickened, and the whole become an organised mass of flesh. The pressure, as it should seem, of the tumor on the ilia, had rendered both of them carious and purulent; and especially that on the affected side. This mass was taken entirely out of the body, and weighed fifty-six pounds, exclusive of the fluid lost in the dissection, which might probably amount to three or four pints.

"The first symptoms of a diseased or dropical ovary, are allowedly very obscure and equivocal. Probably in most cases the part is so far enlarged, as to be sensible, even by its weight, to the patient, before the disease is discovered. In the advanced state, it is well known to admit of great variety, in respect to the change that the ovary has undergone, as well as in the nature of the contents. In some, the whole forms one large bag, or cyst, full of water, of different degrees of fluidity, as in the ascites; in others it is made up of a congeries of cysts, with coats more or less thick, and the contained fluid is sometimes glutinous and ropy, and sometimes of a steatomatous nature; in others, the whole is made up of hydatids: of this latter kind, probably, were the cysts described in the present case in the beginning of the disease; for that the tumor originated in the ovary I think we can scarcely doubt, from the strong connection it had with the broad ligament only, and the impossibility of discovering any ovary on that side.

"Diseases of this part are, unhappily, among those which admit of small relief from medicine. It may, indeed, too justly be doubted (if in any instances they are ascertainable in the beginning) whether the progress of them can be checked by the power of physic. In the latter periods, physicians but too frequently experience the inefficacy of their art. Palliative relief is then only to be expected. For what medicine could avail against the increase of an organised mass of flesh, which seemed at last, indeed, to be bounded only by the incapacity of the abdomen to admit of further enlargement?

"In the present case, while the tumor was not extraordinarily larger, and the cellular membrane was loaded, diuretics of various kinds were administered, upon casual diminutions of the renal secretion, with success. As the emaciated state came on, they were more disused; and gentle opening medicines procured temporary alleviation.

"It has been usual to consider and denominate all general enlargements of the abdomen as dropsies; and to this term, among people at large, is even annexed the idea of water in the cavity,

Were the prejudices of mankind so far overcome, as to allow of more frequent dissections, the diagnostics of the several kinds of dropsies and tumors of the abdomen might become, if not fixed, at least much more probably ascertainable; and a just prognostic secured by the practitioner, not less advantageous to his reputation than to the general advancement of the art. Much injudicious and fruitless application of medicine would be prevented, and, not unfrequently, the unavailing operation of the paracentesis, by which the fate of the patient has doubtless been often accelerated.

"It would be tedious and unnecessary to quote a number of authors for cases of this kind; they are frequent in the writers of pathological observations, and in the *Sepulchreta* of Bonetus and others. The *Philosophical Transactions*, and the *London Medical Observations*, contain several; but, above all, the *Historia Anatomico-Medica* of Lieutaud abounds with them, under the heads *Ovaria Tumentia*, *Ingentia*, *Scirrhusa*, &c. Yet among all these I do not meet with any in which the whole tumor was so entirely composed of a hard fleshy substance, as in that of the present instance; since I think, from the best computation I am able to make, that the whole could not contain five or six pints of fluid.

"From this circumstance, the disease in its last stage, however connected originally with a dropical cause, will be found, in the systems of modern nosologists, under the term *physconia*; of which genus Sauvages, Cullen, and Sagar, enumerate fourteen or fifteen species; deriving the specific name and distinction from the different viscera or parts from which they originate.

"Sauvages, after quoting the case mentioned by Monro in the *Edinburgh Medical Essays*, vol. vi. produces one from Horstius, in which, though not arising from the ovarium, the tumor was equal to that I have described; since it weighed fifty-six pounds, and was of a strong, fleshy, and scirrhusous substance. It was connected with the stomach; and is referred to the *physconia omentalis*.

"In Morgagni's book, *De Causis et Sedibus Morborum*, the reader will meet with much satisfactory information on this head. This author describes a case, in which the ovarium weighed twenty-four pounds. This tumor was unconnected, except with the left side of the uterus, and was composed of vesicles of unequal magnitudes.

"I may refer also to an instance in the *Philosophical Transactions*, communicated by Dr. Short, in which the right ovary was found distended into a sac, containing a large quantity of fluid; and the left was enlarged, and formed a cystic tumor,

which weighed twenty pounds. Lieutaud, among many others, from a variety of authors, cites a case from Vater, of a woman who died at the age of sixty years, after having laboured under what was called a dropsy for the last ten; in whom the right ovary had increased to such a magnitude, as to weigh upwards of one hundred pounds." -

CHAP. VII. OF THE GENERAL MANAGEMENT OF WOMEN AFTER DELIVERY.

THE woman being delivered of the child and placenta, let a soft linen cloth, warmed, be applied to the external parts; and if she complains much of a smarting forenefs, some pomatum may be spread upon it. The linen that was laid below her, to sponge up the discharges, must be removed, and replaced with others that are clean, dry, and warm. Let her lie on her back, with her legs extended close to each other; or upon her side, if she thinks she can lie easier in that position, until she recovers from the fatigue: if she is spent and exhausted, let her take a little warm wine or caudle, or, according to the common custom, some nutmeg and sugar grated together in a spoon: the principal design of administering this powder, which among the good women is seldom neglected, is to supply the want of some cordial draught, when the patient is too weak to be raised, or supposed to be in danger of retchings from her stomach's being over-loaded. When she hath in some measure recovered her strength and spirits, let the cloths be removed from the parts, and others applied in their room; and, if there is a large discharge from the uterus, let the wet linen below her be also shifted, that she may not run the risk of catching cold.

When the patient is either weak or faintish, she ought not to be taken out of bed, or even raised up to have her head and body shifted, until she is a little recruited; otherwise she will be in danger of repeated faintings, attended with convulsions, which sometimes end in death. To prevent these bad consequences, her skirt and petticoats ought to be loosened and pulled down over the legs, and replaced by another well warmed, with a broad head-band to be slipt in below, and brought up over her thighs and hips: a warm double cloth must be laid on the belly, which is to be surrounded by the head-band of the skirt pinned moderately tight over the cloth, in order to compress the viscera and the relaxed parietes of the abdomen, more or less as the woman can easily bear it; by which means the uterus is kept firm in the lower part of the abdomen, and prevented from rolling from side to side when the patient is turned; but the principal

end of this compression is to hinder too great a quantity of blood from rushing into the relaxed vessels of the abdominal contents, especially when the uterus is emptied all of a sudden by a quick delivery. The pressure being thus suddenly removed, the head is all at once robbed of its proportion of blood, and the immediate revulsion precipitates the patient into dangerous lypothymia.

For this reason the belly ought to be firmly compressed by the hands of an assistant, until the bandage is applied; or, in lieu of it, a long towel, sheet, or roller, to make a suitable compression; but for this purpose different methods are used in different countries, or according to the different circumstances of the patients. The head-clothes and shift ought also to be changed, because with sweating in time of labour they are rendered wet and disagreeable. Several other applications are necessary, when the external or internal parts are rent or inflamed; misfortunes that sometimes happen in laborious and preternatural cases. We shall conclude this chapter with giving some necessary directions with regard to air, diet, &c.

Although we cannot remove the patient immediately after delivery into another climate, we can qualify the air so as to keep it of a moderate and salutary temperature, by rendering it warm or cold, moist or dry, according to the circumstances of the occasion. With regard to diet, women, in time of labour, and even till the ninth day after delivery, ought to eat little solid food, and none at all during the first five or seven: let them drink plentifully of warm diluting fluids, such as barley-water, gruel, chicken-water, and teas: caudles are also commonly used, composed of water-gruel boiled up with mace and cinnamon, to which, when strained, is added a third or fourth part of white wine, or less if the patient drinks plentifully, sweetened with sugar to the taste: this composition is termed *white caudle*; whereas, if ale is used instead of wine, it goes under the name of *brown caudle*. In some countries, eggs are added to both kinds; but, in that case, the woman is not permitted to eat meat or broths till after the fifth or seventh day: in this country, however, as eggs are no part of the ingredients, the patient is indulged with weak broth sooner, and sometimes allowed to eat a little boiled chicken. But all these different preparations are to be prescribed weaker or stronger, with regard to the spices, wine, or ale, according to the different constitutions and situations of different patients: for example, if she is low and weak, in consequence of an extraordinary discharge of any kind, either before or after delivery, or if the weather is cold, the caudles and broths may be made the stronger; but if she is of a full habit of body, and has the least tendency to a fever, or if the season is excessively hot, these drinks ought to be of a very weak consistence, or the patient re-

stricted to gruel, tea, barley and chicken water, and these varied according to the emergency of the case.

Her food must be light and easy of digestion, such as panada, biscuit, and sago; about the fifth or seventh day she may eat a little boiled chicken, or the lightest kind of young meat; but these last may be given sooner or later according to the circumstances of the case and the appetite of the patient. In the regimen as to the eating and drinking, we should rather err on the abstemious side than indulge the woman with meat and strong fermented liquors, even if these last should be most agreeable to her palate; for we find by experience that they are apt to increase or bring on fevers, and that the most nourishing and salutary diet is that which we have above prescribed. Every thing that is difficult of digestion, or quickens the circulating fluids, must of necessity promote a fever, by which the necessary discharges are obstructed, and the patient's life endangered.

As to the article of sleeping and watching, the patient must be kept as free from noise as possible, by covering the floors and stairs with carpets and cloths, oiling the hinges of the doors, silencing the bells, tying up the knockers, and in noisy streets strewing the pavement with straw; if, notwithstanding these precautions, she is disturbed, her ears must be stuffed with cotton, and opiates administered to procure sleep; because watching makes her restless, prevents perspiration, and promotes a fever.

Motion and rest are another part of the nonnaturals to which we ought to pay particular regard. By tossing about, getting out of bed, or sitting up too long, the perspiration is discouraged and interrupted; and in this last attitude the uterus, not yet fully contracted, hangs down, stretching the ligaments, occasioning pain, cold shiverings, and a fever: for the prevention of these bad symptoms, the patient must be kept quiet in bed till after the fourth or fifth day, and then be gently lifted up in the bed-clothes, in a lying posture, until the bed can be adjusted, into which she must be immediately reconveyed, there to continue, for the most part, till the ninth day; after which period women are not so subject to fevers as immediately after delivery. Some there are who, from the nature of their constitutions, or other accidents, recover more slowly; and such are to be treated with the same caution after as before the ninth day, as the case seems to indicate: others get up, walk about, and recover, in a much shorter time; but these may some time or other pay dearly for their foolhardiness, by encouraging dangerous fevers; so that we ought rather to err on the safe side than run any risk whatsoever.

What next comes under consideration is the circumstance of retention and excretion. We have formerly observed, that, in time of labour, before the head of the child is locked into the

pelvis, if the woman has not had an easy passage in her belly that same day, the rectum and colon ought to be emptied by a clyster, which will assist the labour, prevent the disagreeable excretion of the fæces before the child's head, and enable the patient to remain two or three days after, without the necessity of going to stool. However, should this precaution be neglected, and the patient very costive after delivery, we must beware of throwing up stimulating clysters, or administering strong cathartics, lest they should bring on too many loose stools, which, if they cannot be stopt, sometimes produce fatal consequences, by obstructing the perspiration and lochia, and exhausting the woman, so as that she will die all of a sudden; a catastrophe which hath frequently happened from this practice. Wherefore, if it be necessary to empty the intestines, we ought to prescribe nothing but emollient clysters, or some very gentle opener, such as manna, magnesia, castor oil, or elect. sennæ. But no excretion is of more consequence to the patient's recovery than a free perspiration; which is so absolutely necessary, that unless she has a moisture continually on the surface of her body for some days after the birth, she seldom recovers to advantage: her health, therefore, in a great measure, depends upon her enjoying undisturbed repose, and a constant breathing sweat, which prevents a fever, by carrying off the tension, and assists the equal discharge of the lochia: and when these are obstructed, and a fever ensues with pain and restlessness, nothing relieves the patient so effectually as rest and moderate sweating, procured by opiates and sudorifics at the beginning of her complaints; yet these last must be more cautiously prescribed in excessively hot than in cool weather.

The last of the nonnaturals to be considered are the passions of the mind, which also require particular attention. The patient's imagination must not be disturbed by the news of any extraordinary accident which may have happened to her family or friends; for such information hath been known to carry off the labour-pains entirely, after they were begun, and the woman has sunk under her dejection of spirits; and, even after delivery, these unseasonable communications have produced such anxiety as obstructed all the necessary excretions, and brought on a violent fever and convulsions, that ended in death.

The following cases from Smellie may be useful to the young practitioner:—

CASE I.—This relates to the inconveniences arising from heated air.

"Some years ago," says Dr. Smellie, "when the summer was uncommonly hot in London, I was called to a patient in labour. There was a fire in the room, which was so hot and suffocating, that the woman, her attendants, and myself, were scarcely able to breathe. I immediately ordered the fire to be

extinguished, the windows and door of the room to be set wide open, and some of the clothes to be taken off the bed. The ignorant nurse had demanded a fire to warm the clothes or cloths, and put as many blankets on the bed as were used in cold weather. As she imagined warm and nourishing things were best, she had also mixed plenty of wine and spicery in the caudle.

"When I examined, I found the labour pretty far advanced; but my patient was very hot, having a quick full pulse, accompanied with a great drought.

"Being afraid of the bad consequence of these violent symptoms, I immediately ordered twelve ounces of blood to be taken from her arm; and directed her to drink barley-water acidulated with juice of lemon. The symptoms abated, and she was safely delivered in about an hour after my arrival. The discharges being in a sufficient quantity, I ordered her to be kept quiet, and to drink plentifully of barley-water without the lemon. The room being now pretty cool, the window was shut, but the door left open.

"Next day, as the weather was still scorching hot, I ordered a window towards the north to be kept open. The patient being still hot and dry, and the pulse a little quick, I desired her to continue the barley-water for drink, and also to take between whiles some water-gruel, and toasted bread for nourishment. By this method the fever was abated, and she recovered.

"During the same period I attended several patients in labour; and, the same cautious methods being used, they all recovered. By way of precaution, I ordered each of them to lose about six or eight ounces of blood, to keep moderately cool, and take a light diet, more or less, according to their different constitutions.

CASE II.—This relates to *errors in diet*.

"It is really surprising," says Dr. Smellie, "to see the folly of ignorant midwives and nurses in their opinions about eating and drinking, from the excess of which many poor women have lost their lives.

"I was called by one of the first-rate midwives, to see a shopkeeper's wife whom she had delivered the night before. I found her pulse quick; she had enjoyed little or no rest, and complained that she had an uneasiness and load at her stomach. The midwife told me she had eaten nothing but 'her chicken'; and that was her usual way with all women, to fill up the emptiness of their bowels, and keep the wind out of the stomach. I found the patient was naturally of a delicate constitution: I said nothing then; but ordered her to drink frequently a little barley-water instead of strong caudle, and prescribed an emollient clyster, and these had the good effect to empty and assist digestion. I afterwards argued privately with the midwife on the subject; and she was convinced, from what had happened, that the complaint pro-

ceeded from the patient's being forced to eat against her inclination. I told the midwife that the method might do with some who had a good appetite; and indeed some of my patients have complained of being excessively hungry after delivery, and these I have allowed to eat more or less of a chicken, or of other food of easy digestion, and they were not the worse; but to those who had no such craving, I found gruel and broth with bread were better, and sat easier on the stomach."

CASE III.—Fatal errors are also frequently committed in the article of *drink*. Many midwives imagine, that women in labour, and after delivery, ought to have strong cordials to assist and support them, together with brandy or wine in their caudle. Dr. Smellie gives a fatal instance of this, which may be sufficient to deter midwives from such practices. "Many years ago," says he, "I was called to a friend of my wife's, who had been safely delivered about three days. When I arrived, they told me she had been in a great fever, and had violent pains in the abdomen, for two days; but that now she was much easier. I enquired particularly, and found that, during labour and ever since, her drink had been mostly warm punch; three parts water, and one of brandy. She had an intense heat on the skin of her arm; her pulse was quick, low, and intermitting. The pains, from being violent, were suddenly abated, and indeed quite gone. I then told the friends, that, far from being better, she was in the most imminent hazard of her life; that there had been a violent inflammation of the uterus; and that the pains abating on a sudden plainly indicated, that an incurable mortification was coming on; that as her pulse had begun to intermit, she would soon grow delirious, and die in a few hours. My prognostic was verified, to the great surprize of all present."

CASE IV.—This case relates to *sleep and watching*. Dr. Smellie tells us, that it was formerly counted dangerous to allow women to sleep immediately after delivery, and that it was not uncommon for the nurse and attendants to keep them awake, by reading odd romantic stories. Every one knows the absurdity of this, as well as the perfect safety and advantage with which opiates generally may be administered either before or after labour. Some difficulties, however, may occur in cases where opium usually disagrees with the patient.

Dr. Smellie was called by an apothecary to a patient who had been delivered the day before. She had got no rest, and complained of great pain in her bowels, which did not seem to be after-pains. It was her first child. She had no stoppage of urine or symptoms of a fever. She begged of him if possible to relieve her; but at the same time, not to give her any preparation in which there was *opium*. "I told the apothecary," says the doctor, "that as the pains were so violent, nothing else could re-

lieve her. He said, that opiates did never agree with her in her former complaints, or make her sleep when restless. I answered, that I wanted only to ease the pain; and after that she would sleep of course, and that we must deceive her. I ordered a draught with thirty drops of the tincture of opium. I called next morning, and found her free from pain. She had enjoyed good rest; and said, that she had been in heaven ever since she had taken the medicine. I have had many instances of the same kind, when opiates were administered properly, as mentioned in the latter end of the first volume. However, I have had also some few patients who were not in pain, but could not rest, and opiates did them no service; as in the following case.

CASE V.—“An apothecary’s wife, in her first child, was every way safe and easy after delivery, but could not sleep. I ordered a gentle opiate, which had no effect; but instead of composing, gave her a giddiness, and presented many spectres to her imagination. I then ordered a bolus of pulv. castor. gr. v. and sal. vol. corn. cervi gr. iij. to be taken, and repeated occasionally. This had the desired effect, by which she got good rest; and it was the only remedy that procured sleep in her succeeding deliveries.”

CASE VI.—This case relates to *motion and rest*.

“A woman of a healthy constitution,” says Dr. Smellie, “who had been delivered twice in the country, came to live with her family in London when big with child. I was bespoken to attend her, and she was safely delivered. I visited her the second and third day, and found every thing in a good way; but was surpris’d when I called on the fourth to find her up, and in her common dress. She told me, that she had sat up the evening and night before, and played at cards, and was to dine with the family; that she had done the same after her former labours, and recovered much better than those who lay in bed. I exclaimed against that practice, and told her that I had been called often to patients who had been thrown into violent complaints by getting up too soon, and I was afraid she might suffer sooner or later by being too forward. However, she persisted in her old way, and recovered exceedingly well; but the next time I delivered her, she was on the fourth day taken with violent pains in the lower parts of the abdomen, which threw her into a violent fever. As I was engaged with another patient, I did not see her till they sent for me on the sixth, when I found the pains and fever excessive. She was immediately bled; a physician was called, and we ordered saline draughts with nitre. She grew delirious, the pain went off suddenly on the seventh, and she died the same night.”

CASE VII.—In this case there existed an obstruction of urine.

“I was called,” says Dr. Smellie, “to a woman who had been, three hours before I came, delivered of her first child, about eight at night. She complained of excessive pain in the abdomen.

Her midwife had left her. I enquired of the patient if she had made water during labour, and she told me she had made great quantities. I examined the abdomen, and found there was not another child, and the nurse told me that the placenta was all come off: I ordered her an opiate, in hopes that it would relieve the pain, and called next morning, when the midwife was present. The patient was still in great pain, and had got no rest all night. I then said I was surprised that the complaint was so obstinate, especially as she had passed so much water in the time of labour, and enquired if she had made any during the night. The midwife told me, that she was certain she had made no water all the time of her labour, which was very tedious, and that she had passed none since. I then found that the patient had mistaken the waters from the uterus for her urine, and that all these pains proceeded from the distension of the bladder. I immediately drew off a large quantity, as I remember, about five pints. She said in time of the operation, when not above a pint or less was drawn off, that now she was as if in heaven, by being free from pain. I have had many such cases, in which I was obliged to draw off the urine several times before the patients could make water; but unless they were in great pain, I always waited to try what nature would do, sometimes to the third or even to the fourth day, especially if they sweated much."

CASE VIII.—*Costiveness*. "It is a great happiness," says Dr. Smellie, "if patients are costive before delivery, that the child's head as it is pressed down to the lower part of the pelvis forces down before it the hard excrements which are contained in the rectum; by which means the patient has a plentiful stool. I have had many patients, however, who wanted relief about the fourth or fifth day after; this was easily accomplished by laxative medicines or clysters.

"I was called to a woman who had been without passage from her delivery to the seventh day. She had great strainings, but to no purpose. A clyster was tried to be thrown up, but it would not pass. A suppository was used, without producing the desired effect. About four spoonfuls of warmed oil were injected, which brought off some hard fæces: this gave room for another clyster, which relieved the patient."

CASE IX.—*Purging*. "A woman, about the eighteenth or twentieth day after delivery, when she seemed out of danger, was taken all of a sudden with a violent purging, which immediately sunk her very low: this was soon checked; but then her legs began to swell, from her having been so suddenly emptied and weakened by the looseness. Her stomach also nauseated all food. Being called to her assistance, I declared her in great danger, especially as she was naturally of a weak constitution, and I advised the friends to take the advice of a physician, as it was not

now my province to prescribe. Dr. Mead visited her next day, and ordered medicines to invigorate the body, by quickening the circulation of the blood, and strengthening the fibres of the bowels; nevertheless the languor continued, and the swelling in her legs increased with violent pains in them. At last, the lower part of her belly and right side swelled excessively, and she died about six weeks after delivery."

CASE X.—*Passions of the mind.* "I attended a patient on the night that a fire happened in Beaufort-buildings, and within a few houses of the patient's dwelling. The labour went on exceedingly well, and we kept her from the knowledge of the accident for some little time, until we had taken measures for her safety, by having a chair in waiting, and a room prepared in a friend's house near Covent-garden. At length the noise alarmed her; I told her the affair, and that it was at a distance, and also that we had provided for her safety: she seemed satisfied; yet the pains immediately ceased. And although the fire was extinguished, yet the pains did not return till some hours after, when she was soon delivered, and recovered tolerably well."

CASE XI.—"I was called to Fenchurch-street by one of my pupils, who with an old midwife was attending a patient pretty much advanced in years, in labour of her first child. Every thing was in a right way for a safe delivery; but as the case was tedious and lingering, both the woman and her friends were impatient, and had sent for an old blundering pretender in that neighbourhood, who told the patient that she was in the utmost danger if she was not immediately delivered. He said he hoped he could save her life, but the child was dead already, and he called in another midwife, who confirmed what he asserted. The woman's pains had been vigorous; but these dismal proposals frightened her so much, that when I arrived they were quite gone off. After conversing with the patient, we (all five) went to another room, where the parties began to quarrel. I called the old blustering practitioner aside, and told him my opinion, that the woman was in no danger; but by time and patience I hoped would be safely delivered. As I threatened to have him called before the college if he insisted on any violent operation, he quitted the house with his associate, after which we had time to soothe and encourage the woman. As she had got little sleep, we gave her a draught with thirty drops of laudanum, and the midwife delivered her safely on the next day."

CHAP. VIII. OF VIOLENT FLOODINGS.

ALL women, when the placenta separates, and after it is delivered, lose more or less red blood, from the quantity of half a pound to that of a pound, or even two; but should it exceed this proportion, and continue to flow without diminution, the patient is in great danger of her life: this hazardous hemorrhagy is known by the violence of the discharge, wetting fresh cloths as fast as they can be applied; from the pulse becoming low and weak, and the countenance turning pale; then the extremities grow cold, she sinks into faintings, and, if the discharge is not speedily stopped or diminished, is seized with convulsions, which often terminate in death.

This dangerous efflux is occasioned by every thing that hinders the emptied uterus from contracting, such as great weakness and lassitude, in consequence of repeated floodings before delivery; the sudden evacuation of the uterus; sometimes, though seldom, it proceeds from part of the placenta's being left in the womb; it may happen when there is another child, or more, still undelivered; when the womb is kept distended with a large quantity of coagulated blood; or when it is inverted, by pulling too forcibly at the placenta.

In this case, as there is no time to be lost, and internal medicines cannot act so suddenly as to answer the purpose, we must have immediate recourse to external application. If the disorder be owing to weakness, by which the uterus is disabled from contracting itself, so that the mouths of the vessels are left open; or, though contracted a little, yet not enough to restrain the hemorrhagy of the thin blood; or if, in separating the placenta, the accoucheur has scratched or torn the inner surface or membrane of the womb; in these cases, such things must be used as will assist the contractile power of the uterus, and hinder the blood from flowing so fast into it and the neighbouring vessels; for this purpose, cloths dipped in any cold astringent fluid, such as oxybate, or red tart wine, may be applied to the back and belly. Some prescribe venesection in the arm, to the amount of six or eight ounces, with a view of making revulsion: if the pulse is strong, this may be proper; otherwise, it will do more harm than good. Others order ligatures, for compressing the returning veins at the hams, arms, and neck, to retain as much blood as possible in the extremities and head. Besides these applications, the vagina may be filled with tow or linen rags, dipped in the above-mentioned liquids, in which a little alum or vitriolated zinc hath been dissolved; nay, some practitioners inject proof spirits warmed, or, soaking them up in a rag or sponge, introduce and squeeze them

into the uterus, in order to constrict the vessels; but we doubt the propriety of this.

If the flooding proceeds from another child, the retention of the placenta (see chap. vi.), or coagulated blood, these ought immediately to be extracted; and if there is an inversion of the uterus, it must be speedily reduced. Should the hemorrhagy, by these methods, abate a little, but still continue to flow, though not in such a quantity as to bring on sudden death, some red wine and jelly ought to be prescribed for the patient, who should take it frequently, and a little at a time; but, above all things, chicken or mutton broths, administered in the same manner, for fear of overloading the weakened stomach, and occasioning retchings; these, repeated in small quantities, will gradually fill the exhausted vessels, and keep up the circulation. If the pulse continues strong, it will be proper to order repeated draughts of barley-water, acidulated with diluted acid of vitriol; but if the circulation be weak and languid, extract of bark, dissolved in aq. cinnamonomi, and given in small draughts, or exhibited in any other form, will be serviceable; at the same time lulling the patient to rest with opiates. These, indeed, when the first violence of the flood is abated, if properly and cautiously used, are generally more effectual than any other medicine.

CASE I.—Dr. Smellie attended a woman in a tedious labour, who was at last safely delivered. A large discharge of blood followed the placenta, which did not abate as usual, but continued so as to sink her spirits, and endanger the patient's life. Her countenance turned pale, and her pulse became low. "I immediately," says the doctor, "gave her fifteen drops of laudanum, and applied cloths dipped in vinegar to the pudenda. The discharge diminished; but continued to flow rather faster than I judged was safe in her weak condition. I gave five drops more in about half an hour after the first, which had the desired effect, by throwing her into sleep, and restraining the flooding. She recovered tolerably well; but was weak for some time before she retrieved her wonted strength. The next time she happened to be in labour she was excessively afraid of being again in the same condition, and begged I would order the same medicine by way of prevention. When I found the labour was pretty far advanced, and the os uteri dilated by the membranes, I gave her twenty drops of laudanum, and before the delivery she began to dose a little betwixt the pains. She was soon delivered, and had a moderate discharge, which gradually abated. She afterwards fell into a sound sleep, and recovered very well. I have had many such cases, in which I always found this method the most successful when called in time, and when the vessels were not too much emptied."

CASE II.—"A woman, whom I had safely delivered after a

tedious labour, seemed to be in a good way, but of a weakly constitution. I was called in a hurry to another patient; but before I left her, the uterine discharge was sufficiently abated. I ordered a quieting draught to be taken, if she did not soon fall asleep. In about an hour after they sent for me: when I arrived I found the patient quite pale, with scarcely any pulse; she had fainted several times. I was told by the nurse, that when moved to place her right in bed, she was taken all of a sudden with a violent flooding, to such a degree, that it ran over the bed into the floor. I immediately ordered cloths dipped in vinegar and water, wrung out, to be applied; but while I was dropping some tinct. opii into a cup with wine and water, the draught not being yet come from the apothecary's, she fell into another fainting fit, and expired. Such fatal accidents seldom happen, except in extreme weakness of constitution, or from great floodings before, and in time of, delivery. I regretted that I had not given her an opiate in time of labour, which I have since found from experience to be the best method, to secure the patient from being attacked by such fatal discharges."

CASE III.—"I was called by another gentleman, to assist in a case wherein the patient was in time of labour attacked with a flooding, occasioned by part of the placenta's being detached from the uterus. He had given her repeated astringent draughts with five drops of tinct. opii in each; but as they had not procured any inclination to sleep, I advised him to give her a simple draught with thirty drops. This soon had the desired effect; she slept sound betwixt every pain, the flooding abated, and in a little time she was safely delivered. She had been much reduced by the flooding; was weak and low; but by her falling asleep immediately after delivery, the discharge was abated, and kept within bounds."

CHAP. IX. OF THE AFTER-PAINS.

AFTER-PAINS commonly happen when the fibrous part of the blood is retained in the uterus or vagina, and formed into large clots, which are detained by the sudden contraction of the os internum and externum, after the placenta is delivered; or, if these should be extracted, others will sometimes be formed, though not so large as the first, because the cavity of the womb is continually diminishing after the birth. The uterus, in contracting, presses down these coagula to the os internum; which, being again gradually stretched, produces a degree of labour pains, owing to the irritation of its nerves: in consequence of this uneasiness, the woman squeezes the womb as in real labour; the force being increased, the clots are pushed along, and when they are delivered

the grows easy. The larger the quantity is of the coagulated blood, the severer are the pains, and the longer they continue.

Women, in the first child, seldom have after-pains; because, after delivery, the womb is supposed to contract and push off the clots with greater force in the first than in the following labours: after-pains may also proceed from obstructions in the vessels, and irritations at the os internum. In order to prevent or remove these pains, as soon as the placenta is separated and delivered, the hand being introduced into the uterus may clear it of all the coagula. When the womb is felt through the parietics of the abdomen larger than usual, it may be taken for granted that there is either another child, or a large quantity of this clotted blood; and, whichever it may be, there is a necessity for its being extracted. If the placenta comes away of itself, and the after-pains are violent, they may be alleviated and carried off by an opiate: for, by sleeping and sweating plentifully, the irritation is removed, the evacuations are increased, the os uteri is insensibly relaxed, and the coagula slide easily along. When the discharge of the lochia is small, the after-pains, if moderate, ought not to be restrained; because the squeezing which they occasion promotes the other evacuation, which is necessary for the recovery of the patient. After-pains may also proceed from an obstruction in some of the vessels, occasioning a small inflammation of the os internum and ligaments; and the squeezing thereby occasioned may not only help to propel the obstructing fluid, but also (if not too violent) contribute to the natural discharges.

CHAP. X. OF THE LOCHIA.

WE have already observed, that the delivery of the child and placenta is followed by an efflux of more or less blood, discharged from the uterus, which, by the immediate evacuation of the large vessels, is allowed to contract itself the more freely, without the danger of an inflammation, which would probably happen in the contraction, if the great vessels were not emptied at the same time; but as the fluids in the smaller vessels cannot be so soon evacuated, or returned into the vena cava, it is necessary that, after the great discharge is abated, a slow and gradual evacuation should continue, until the womb shall be contracted to near the same size which it had before pregnancy; and to this it attains about the eighteenth or twentieth day after delivery, though the period is different in different women.

When the large vessels are emptied immediately after delivery, the discharge frequently ceases for several hours, until the fluids in the smaller vessels are propelled into the larger, and then begins to flow again, of a paler colour.

The red colour of the lochia commonly continues till the fifth day, though it is always turning more and more serous from the beginning; but, about the fifth day, it flows of a clear, or sometimes (though seldom) of a greenish tint; for, the mouths of the vessels growing gradually narrower by the contraction of the uterus, at last allow the serous part only to pass: as for the greenish hue, it is supposed to proceed from a dissolution of the cellular or cribriform membrane or mucus, that surrounded the surface of the placenta and chorion; part of which, being left in the uterus, becomes livid, decays, and, dissolving, mixes with and tinctures the discharge as it passes along.

Though the lochia, as we have already observed, commonly continue till the eighteenth or twentieth day, they are every day diminishing in quantity, and soonest cease in those women who suckle their children, or have had an extraordinary discharge at first; but the colour, quantity, and duration, differ in different women: in some patients, the red colour disappears on the first or second day; and in others, though rarely, it continues more or less to the end of the month: the evacuation in some is very small, in others excessive: in one woman it ceases very soon, in another flows during the whole month; yet all of these patients shall do well.

Some allege, that this discharge from the uterus is the same with that from a wound of a large surface; but it is more reasonable to suppose, that the change of colour and diminution of quantity proceed from the flow contraction of the vessels; because, previous to pus, there must have been lacerations and imposthumes, and, in women who have suddenly died after delivery, no wound or excoriation hath appeared upon the inner surface of the womb, which is sometimes found altogether smooth, and at other times rough and unequal, on that part to which the placenta adhered. The space that is occupied before the delivery, from being six inches in diameter, or eighteen inches in circumference, will, soon after the birth, be contracted to one third or fourth of these dimensions.

CASE I.—Dr. Smellie was called to a woman soon after delivery, who was in great pain at intervals, and imagined she had another child. "I examined," says he, "and felt the os uteri contracted; the uterus indeed felt larger than common, when I examined the abdomen; but not so much as to induce one to believe it contained another fetus. The midwife and nurse assured me, that the placenta came off without any violence. I ordered a composing mixture with thirty drops of the tinct. opii, one half to be given presently, and the remainder afterwards, as there might be occasion, to relieve the pains and procure rest. This was in the morning, and the weather was excessively cold. I called again in the evening; she was still in pain, but had dosed

a little. She complained much of the coldness of her feet. I ordered hot bricks wrapped in flannel to be applied to the soles of her feet, and the small of her back, which was also affected with a chiliness. I also desired the nurse to put more clothes on the bed; and give her some warm gruel. She had taken all the mixture, and I did not choose to order any more, being in hopes that this method would throw her into a plentiful sweat, which would relax the fibres, and assist her complaints; or carry off the spasms that might be the occasion of the after-pains.

"Next morning, when I visited her, the nurse told me, that soon after my directions were followed the patient fell into a pleasant sweat; a very large coagulum was discharged; the pains went off, and she had a good night's rest."

CASE II.—"I attended a patient, whose child and placenta were delivered expeditiously and safely, with a very few labour pains: but soon after that she was attacked by severe after-pains. I ordered a composing mixture, as in the former case, to procure a breathing sweat as soon as possible. She got some rest, fell into a gentle diaphoresis, and some small coagula were discharged; but after the effect of the opiate was over, the pains returned with great violence. She seemed to be, in every other respect, in a good way of recovery. As her pulse was rather quick, I did not choose to repeat the opiate; but, to amuse her, I ordered two spermaceti draughts, as she called for them. When I repeated my visit in the evening, the violence of the pains still continued: yet, although she had not slept, she had undergone a gentle perspiration, and her pulse was become more moderate. I then prescribed a simple draught with tinct. opii gtt. xx.; the pains abated in the night, but returned in the morning, and grew more violent in the evening. The last draught was again repeated, and administered the night following. The pains went entirely off on the fifth day, without any more clots of blood being discharged. Of these two cases, the first seems to have proceeded from coagulated blood, and the last from periodical spasms, or irritations; for the common discharges were in the usual proportion. I have had many such cases; but seldom any so violent."

CHAP. XI. OF THE MILK-FEVER.

ABOUT the fourth day, the breasts generally begin to grow turgid and painful. We have formerly observed, that, during the time of uterine gestation, the breasts in most women gradually increase till the delivery, growing softer as they are enlarged by the vessels being more and more filled with fluids; and by this gradual distension they are prepared for secreting the milk from the blood after delivery. During the two or three first days after parturition,

especially when the woman has undergone a large discharge, the breasts have been sometimes observed to subside and grow flaccid; and about the third or fourth day, when the lochia begin to decrease, the breasts swell again to their former size, and stretch more and more, until the milk, being secreted, is either sucked by the child, or frequently of itself runs out at the nipples.

Most of the complaints incident to women after delivery proceed either from the obstruction of the lochia in the uterus, or of the milk in the breasts, occasioned by any thing that will produce a fever; such as catching cold, long and severe labour, eating food that is hard of digestion, and drinking fluids that quicken the circulation of the blood in the large vessels; by which means the smaller, with all the secretory and excretory ducts, are obstructed.

The discharge of the lochia being so different in women of different constitutions, and besides in some measure depending upon the method of management, and the way of life peculiar to the patient, we are not to judge of her situation from the colour, quantity, and duration of them, but from the other symptoms that attend the discharge; and if the woman seems hearty, and in a fair way of recovery, nothing ought to be done with a view to augment or diminish the evacuation. If the discharge be greater than she can bear, it will be attended with all the symptoms of inanition; but as the lochia seldom flow so violently as to destroy the patient of a sudden, she may be supported by a proper nourishing diet, assisted with cordial and restorative medicines. Let her, for example, use broths, jellies, and asses' milk; if the pulse is languid and sunk, she may take moderate doses of the confection aromat. with mixtures composed of the cordial waters and volatile spirits: subastringents and opiates frequently administered, with the cinchona in different forms, and austere wines, are of great service. On the other hand, when the discharge is too small, or hath ceased altogether, the symptoms are more dangerous, and require the contrary method of cure: for now the business is to remove a too great plenitude of the vessels in and about the uterus, occasioning tension, pain, and labour in the circulating fluids; from whence proceed great heat in the part, restlessness, fever, a full, hard, quick pulse, pains in the head and back, nausea, and difficulty in breathing. These complaints, if not at first prevented, or removed by rest and plentiful sweating, must be treated with venæsection and the antiphlogistic method.

When the obstruction is recent, let the patient lie quiet, and encourage a plentiful diaphoresis, by drinking frequently of warm, weak, diluting fluids, such as water gruel, barley-water, tea, or weak chicken-broth.

Should these methods be used without success, and the patient, far from being relieved by rest, plentiful sweating, or a sufficient discharge of the obstructed lochia, labour under an hot dry skin,

anxiety, and a quick, hard, and full pulse, the warm diaphoretics must be laid aside; because, if they fail of having the desired effect, they must necessarily increase the fever and obstruction, and recourse be had to bleeding at the arm or ankle to more or less quantity, according to the degree of fever and obstruction; and this evacuation must be repeated as there is occasion. When the obstruction is not total, it is supposed more proper to bleed at the ankle than at the arm; and at this last, when the discharge is altogether stopped, the ordinary drink ought to be impregnated with nitre.

If she is costive, emollient and gently opening clysters may be occasionally injected; and her breasts must be fomented with a decoction of poppy heads, and sucked, either by the mouth or pipe-glasses. If by these means the fever is abated, and the necessary discharges return, the patient commonly recovers; but if the complaints continue, the antiphlogistic method must still be pursued. If, notwithstanding these efforts, the fever is not diminished or removed by a plentiful discharge of the lochia from the uterus, the milk from the breasts, or by a critical evacuation by sweat, urine, or stool, and the woman is every now and then attacked with cold shiverings, an abscess or abscesses will probably be formed in the uterus or neighbouring parts, or in the breasts; and sometimes the matter will be translated to other situations, and the seat of it foretold from the part's being affected with violent pains: these abscesses are more or less dangerous according to the place in which they happen, the largeness of the suppuration, and the good or bad constitution of the patient. (See the surgical treatment of the milk-breast, in vol. III. page 485.)

If, when the pains in the epigastric region is violent, and the fever increased to a very high degree, the patient should all of a sudden enjoy a cessation from pain, without any previous discharge or critical eruption, the physician may pronounce that a mortification is begun; especially if, at the same time, the pulse becomes low, quick, wavering, and intermitting; if the woman's countenance, from being florid, turns dusky and pale, while she herself, and all the attendants, conceive her much mended; in that case, she will grow delirious, and die in a very short time.

What we have said on this subject regards that fever which proceeds from the obstructed lochia, and in which the breasts may likewise be affected; but the milk-fever is that in which the breasts are originally concerned, and which may happen though the lochia continue to flow in sufficient quantity; nevertheless, they mutually promote each other, and both are to be treated in the manner already explained; namely, by opiates, diluents, and diaphoretics, in the beginning; and, these prescriptions failing, the obstructions must be resolved by the antiphlogistic method described above. The milk-fever alone, when the uterus is not concerned, is not so dangerous, and is much more easily relieved. Women of an

healthy constitution, who suckle their own children, have good nipples, and whose milk comes freely, are seldom or never subject to this disorder, which is more incident to those who do not give suck, and neglect to prevent the secretion in time; or, when the milk is secreted, take no measures for emptying their breasts. This fever likewise happens to women who try too soon to suckle, and continue their efforts too long at one time; by which means the nipples, and consequently the breasts, are often inflamed, swelled, and obstructed.

In order to prevent a too great turgescence in the vessels of the breasts, and the secretion of milk, in those women who do not choose to suckle, it will be proper to make external application of those things which, by their pressure and restraining force, will hinder the blood from flowing in too great a quantity to this part, which is now more yielding than at any other time: for this purpose, let the breasts be covered with emp. litharg. spread upon soft leather, or cloths dipped in camphorated spirits be frequently applied to these parts and the arm-pits; while the patient's diet and drink is of the lightest kind, and given in small quantities. Notwithstanding these precautions, a fullness commonly begins about the third day; but by rest, moderate sweating, and the use of these applications, the tension and pain will subside about the fifth or sixth day, especially if the milk runs out at the nipples: but if the woman catches cold, or is of a full habit of body, and not very abstemious, the tension and pain increasing, will bring on a cold shivering succeeded by a fever; which may obstruct the other excretions, as well as those of the breast.

In this case, mild diaphoretics and nitre must be prescribed, and if a plentiful sweat ensue, the patient will be relieved; at the same time the milk must be extracted from her breasts, by sucking with the mouth or glasses. Should these methods fail, and the fever increase, she ought to be bled in the arm; and, instead of the external applications hitherto used, emollient liniments and cataplasms must be substituted, in order to soften and relax. If, in spite of these endeavours, the fever proceeds for some days, the patient is frequently relieved by critical sweats, a large discharge from the uterus, miliary eruptions, or loose stools mixed with milk, which is curdled in the intestines; but should none of these evacuations happen, and the inflammation continue with increasing violence, there is danger of an imposthume, which is to be brought to maturity, and managed like other inflammatory tumors; but strong astringents ought not to be applied, lest they produce scirrhus swellings in the glands.

As the crisis of this fever, as well as of that last described, often consists in miliary eruptions over the whole surface of the body, but particularly on the neck and breast, by which the fever is carried off, nothing ought to be given which will either greatly increase or

diminish the circulating force, but such only as will keep out the eruptions. But if, notwithstanding these eruptions, the fever, instead of abating, is augmented, it will be necessary to diminish its force, and prevent its increase, by those evacuations we have mentioned above. On the contrary, should the pulse sink, the eruptions begin to retreat inwardly, and the morbid matter be in danger of falling upon the viscera, we must endeavour to keep them out by opiates and sudorific medicines; and here blisters may be applied with success.

CHAP. XII. OF SORE NIPPLES.

WE have already made some remarks on the treatment of this troublesome complaint, in vol. IV. p. 232. To what has been there pointed out, we have only to add a short account of a remedy proposed by Dr. Underwood, with many assurances of its efficacy. This is no other than a solution of vitriolated iron in water, which he calls his *“astringent solution.”* He directs the vitriolated iron (how far like a *chemist*, we leave to others to determine) to be first *deprived of its water of crystallization*, by “calcination to whiteness,” before the *water is added to it*. He says, it is “the best application hitherto known for that obstinate and painful sore on the nipples of suckling women, for which almost every thing has been tried—and almost in vain. The nipples need only to be touched with it several times in the day, either by the point of the finger, or a camel-hair pencil; the part being afterwards covered with the patient’s hand, or other contrivance, to prevent the solution being wiped off; the strength of which must be determined by the degree of tenderness and extent of the sore.”

“I think,” adds the doctor, “I have found some advantage in these cases, and certainly, in drawing out a bad nipple, by covering it with a large nutmeg, hollowed out, and the edges left flat. But whether the warm aromatic quality of the nut has contributed to this, or it has arisen merely from defending the tender nipple both from the linen, which becomes rough by the milk drying upon it, and from the common air, I am not at all anxious to determine. Such a contrivance is always at hand, and attended with no trouble, though worn pretty constantly, and I therefore often advise the use of it as soon as the nipples begin to get sore. This is likewise, doubtless, the best time to have recourse to the *solution*, which has, hitherto answered exceedingly well, ever since I have been acquainted with it. In some very bad cases, where the chaps are so deep that the solution cannot be retained on the part, and are exquisitely tender, especially if of long standing, it will be useful to cover the part with an ointment that is not relaxing, but moderately warm and drying, as the common white cerate may be rendered by

simmering a little brandy in it. A case sometimes occurs, in which the nipple is not so much chapped as it is enlarged and inflamed, and attended with an oozing of sharp serum. Here, after washing the part with the solution made very weak, sprinkling it with a little finely powdered gum tragacanth is of very singular service. But in other instances, my chief dependence is upon the solution, which, if properly attended to, will remove the complaint." As to the proportion of calcined vitriolated iron to be used, the doctor tells us that "the tongue will be the best ordinary test of its due strength, which must always be varied according to the degree of pain and other effects; always beginning with it sufficiently weak. On these accounts, it can be no wonder if it should do less good when left in the hands of nurses, or used merely at the discretion of patients, some of whom do not make use of it frequently enough; whilst others are inclined, as improperly, to keep it constantly on the part, or make it too strong. But in the hands of physicians or surgeons, who know what effects it is designed to produce, and will regulate it accordingly, it cannot fail to gain them credit, and give satisfaction, provided they will for a few days attend to it themselves."

"One great advantage of the solution is, that it is perfectly harmless, and does not therefore require the caution of being wiped off from the part, when the child is laid to the breast. Being also lightly astringent and deterfive, without creating the pain, or that unpleasant and harsh dryness, which other astringents produce, renders it as promising, as experience hath proved it to be successful, in this obstinate complaint; which, besides the great pain that attends it, has frequently frustrated a most laudable and pleasing impulse of nature, by preventing the fond mother from supplying the first wants of the tender infant, to which she has given birth."

CHAP. XIII. OF THE CONSUMPTIVE DISPOSITION BROUGHT ON BY SUCKLING.

THE atrophiam lactantium, tabes nutricum, or that emaciation arising, in some women, from the suckling of children, is a disease with which physicians are well acquainted; but its more frequent occurrence of late, in some parts of the kingdom, renders it now, more than formerly, an object of serious consideration, especially to the inferior classes of females, to whom it is particularly incident. In a very interesting communication to the Medical Society of London, Dr. Walker, of Leeds, points out the cause of this growing malady, and forcibly draws the attention of practitioners towards it.

"It has," says he, "been painfully noticed, in several parts of this extensive and commercial country, and particularly in this

place, that since the more plentiful introduction of tea into the families of the industrious poor, by the late reduction of its price, this disease has made an unusually rapid progress. The difficulty with which animal food is procured by the lower ranks of society, in quantity sufficient for daily nutriment, has led many of them to substitute, in the place of more wholesome provisions, a cheap infusion of this foreign vegetable, whose grateful flavour (and perhaps narcotic quality, which it possesses, in a small degree, in common with most other evergreens) is found to create an appetite for itself, in preference to all other kinds of aliment that the scanty income of poverty allows these deluded objects to procure; though I am sorry to have occasion to add, that the lowering effects of tea-drinking lead too many of these to seek for relief from spirits, and other pernicious cordials, at the expence of health, and the sure consequences of penury and want.

“As this change in the article of diet has been very generally made, especially by the females, and the younger branches of the families of the manufacturing poor, their constitutions have been rendered much less able to bear evacuations of any sort, and particularly that of lactation. I may with great truth aver, that more than two hundred patients of this denomination have, within the last two years, come under my notice. Upon their application for relief, and the consequent enquiry which I have been led to make respecting the nature of their diet, their almost invariable reply has been, that they have chiefly depended upon tea for their support, at the same time that they were permitting an apparently healthy child to draw the whole of its nourishment from them.

“That it is debility, and an impoverished state of the whole system, arising from a deficiency in the due supply of proper and sufficiently nutritious aliment, at a time when the constitution particularly requires it, in consequence of the continual waste which the mother sustains from the suckling of her infant, which lay the foundation of this disease; and that the lungs are but secondarily, or symptomatically, affected; is clearly evinced from an attention to the symptoms.

“The patient first complains of languor and general weakness; loss of appetite; fatigue after exercise, though it be of the gentlest kind; wearisome pains in the back and limbs; soon after which, symptoms of general atrophy come on; the face, in particular, grows thin, and is marked by a certain delicacy of complexion; paleness about the nose; but with a small degree of settled redness in the cheeks. In a short time, if the patient still continues to give suck, she is seized with transitoryitches in the sides, under the sternum, or in some other part of the thorax, accompanied with a short dry cough, and slight dyspnoea upon any muscular exertion; the pulse also becomes frequent,

but seldom so hard as the inflammatory state of the genuine phthisis pulmonalis. Morning sweats next make their appearance; abscesses and ulcers are often formed in the lungs; pus mixed with mucus is expectorated; the general weakness increases; the emaciated patient is unable to support an erect posture; and at last dies literally exhausted.

"With respect to the method of treating this disease, my design is rather to point out the cause of its present unusual prevalence, that suitable cautions may be timely given to the unsuspecting sufferers, than to offer to the public any new modes of practice. The late Dr. Fothergill, who was a correct observer both of nature and the effects of remedies on the human body, has (in the Medical Observations, vol. v. p. 348) made some excellent remarks on the use of the bark, &c. very applicable to the disease in question; to which I am induced to add, for the sake of the younger practitioner, a few observations which have been drawn from my own experience.

First. "It has always appeared to be indispensably necessary for the mother to wean her child immediately upon the appearance of symptoms of debility, as the most essential step towards a cure.

Secondly. "To change the patient's diet from tea, and the less nutritive vegetables, to milk, and its various preparations; gruels, broths, and a small quantity of mild animal food, along with a proper proportion of bread and esculent roots; particularly potatoes, turnips, and carrots. Shell-fish, jellies, chocolate, sago, salep, and tapioca, would all be highly proper, did not poverty prevent the far greater number of these patients from procuring them in sufficient quantity; but as frequent instances of kindness are daily offered by the hand of opulence to these objects of compassion and distress, it is more than probable that the recital of such articles of diet as are likely to afford relief, may have its use, in directing some friendly neighbour to a proper choice of them.

"The animal food which is allowed should always be taken for an early dinner, and by no means late in the afternoon or evening; and is so far from increasing the febrile symptoms in the first stage of this disease, when a state of debility chiefly prevails, that for the most part it proves a powerful restorative, and the patients are soon sensible of the happy change, and gain additional strength; especially when this course has been assisted by gentle tonics, such as the following mixture of myrrh and fil martis, which, with some alteration, is the same that Dr. Griffith has recommended in his Essay on the Ecthic Fever.

(No. 19.) R Gummi myrrhæ pulv. ʒj.

Tinct. cinchonæ ʒvj. tere simul et adde sensim,

Aquæ fontana ʒvj.

Salis nitri purif. ℥ij.
 Ferri vitriolati gr. xij.
 Syrupi balsamici ℥ss.

Fiat mistura, cujus capiat ægra cochl. duo, mane jejuna,
 hora undecima matutina, et quarta pomeridiana.

" In some cases, when there appears to be an exacerbation of fever in the afternoon, I have thought it more useful to confine the administration of this remedy to the forenoon, and to direct a few spoonfuls of the saline julep, or decoctum nitrosum, to be taken frequently in the afternoon, evening, and during the night if necessary.

" If, in the course of a week after the mixture has been regularly administered, the patient should remain free from pain, or sense of restriction in the thorax, difficulty in respiration, or any other symptoms indicating an inflammatory affection of the lungs, we may hope for a favourable termination of the disease, and be encouraged steadily to persevere. Nor in this case should bleeding be admitted of, even in the smallest quantity, as the patient's strength, as well as general habit, have been sufficiently reduced by the preceding circumstances of lactation and improper diet. Decoctions of the cinchona, moderately acidulated with the vitriolic acid, will now be proper, and greatly conducive to the patient's recovery, especially if these can be assisted by a change of situation from the town to the pure air of the country.

" If, however, which is sometimes the case when the disorder has been neglected, and the patient has continued to discharge the office of a mother longer than her ability permitted, the symptoms should indicate a more advanced state of the disease, and fixed pains in some part of the thorax should come on, with oppressed breathing, and a frequent hard pulse, then a small bleeding, to the amount of two or three ounces only, may be occasionally of use; and instead of prescribing the myrrh, bark, or vitriolic acid, it will be advisable to take off the inflammatory determination to the lungs, by strictly enjoining a milk and vegetable diet; keeping the bowels gently open by the mildest and least heating laxatives; moderating the symptomatic fever by cooling salines; and palliating the cough by mucilaginous mixtures, rather than by oily linctuses.

(No. 20.) R Mucilag. gum. arabic. spiss.

Syr. simpl. aa ℥ij.

Syr. limonum ℥j.

Salis nitri purif. ℥j.

Fiat mistura, cujus sumatur cochl. j. quater vel sæpius
 in die, irritante tuss.

" The inflammatory spasm, or constriction of the thorax, should at the same time be relieved by the application of blisters to the part pained, renewing them as they heal, rather than keep-

ing them open : a practice which is not by far so efficacious, yet harasses the patient much more than repeating the blister as soon as the part has healed.

“ When all or most of the inflammatory symptoms are removed by the means just now mentioned, these patients then bear the use of the myrrh, watery infusions of the bark, and the elixir of vitriol, with considerable advantage ; as they are found by experience to be much safer, and more generally beneficial in these symptomatic cases, than in the genuine phthisis arising from the inflammation and suppuration of tubercles in the lungs themselves.”

Dr. Walker properly advises, if the disease be advancing still further, accompanied with morning sweats, purulent spitting, prostration of strength, and the utmost degree of debility, the latter of which always accompanies this disease in a more remarkable degree than the true phthisis, that we should support the patient's strength, by the restorative means he has already directed ; allowing, as in the first stage, a small portion of animal food, at least once a-day ; without which, he says, our endeavours would be frustrated, and, instead of affording relief, would serve only to accelerate the patient's dissolution.

CHAP. XIV. PUERPERAL OR CHILD-BED FEVER.

THIS species of fever, as its name imports, is peculiar to women in child-bed ; and is usually the most fatal of all the disorders to which the sex is liable. But notwithstanding the prevalence of it in all ages, its real nature has remained, to the present time, a subject of much dispute and uncertainty. The critical period of its invasion, when febrile commotions are apt to be excited by various accidents, and the equivocal symptoms which accompany it, have even afforded room for questioning whether it be a primary or a secondary disease. Some writers have considered it as proceeding entirely from an inflammation of the uterus ; others have imagined it to be the consequence of an obstruction to the secretion of the milk ; while the greater number have been inclined, for reasons equally if not more plausible, to impute it to a suppression of the lochia. If we examine this fever attentively, however, according to its natural course, and independently of all the accidental concomitant symptoms with which it is not essentially connected, we may safely pronounce it to be a primary disease of a particular characteristic, and perhaps not the necessary consequence of any of the causes above mentioned.

This fever is most generally incident to women within forty-eight hours after delivery, though it may supervene on the fourth

or fifth day, and sometimes considerably later. It is preceded, like other fevers, by a rigor, which is commonly violent; and, when happening during the time of labour, may be confounded with the pains of parturiency. In its earlier stage it is attended with the signs of inflammation. A great pain is felt in the back, hips, and the region of the uterus; which, in the part last mentioned, is accompanied with a sense of heat and throbbing. A sudden change in the quality or quantity of the lochia now, also takes place; the patient is frequently troubled with a tenesmus; and the urine, which is very high coloured, is discharged in small quantity and with pain. At the first attack of the fever, the woman is generally seized with a vomiting of porraceous matter, as in the cholera morbus, to which disease it then bears a strong resemblance; but, instead of this symptom, there is sometimes only a nausea, or loathing at the stomach, with a disagreeable taste in the mouth. The belly swells to a considerable bulk, and becomes susceptible of painful sensations from the slightest impression. The tongue is generally dry, though sometimes moist, and covered with a thick brownish fur. When the fever has continued a few days, the symptoms of inflammation usually subside, and the disease acquires a more putrid form. At this period, if not at the very beginning of the disorder, a bilious or putrid diarrhoea, of a dangerous and obstinate nature, supervenes, and accompanies it through all its future progress; each motion to stool being preceded by a temporary increase, and followed by an alleviation of pain. The patient usually nauseates all kind of food and drink, except what is cold and acidulated. A brown or blackish sordes, the consequence of putrid exhalations, adheres to the edges of the teeth; a troublesome hiccough is at length produced, which greatly exasperates the pains of the abdomen; petechiæ or vibices also appear, with sometimes a miliary eruption, but which produces no mitigation of the disease. Through the whole course of the fever, the patient is affected with great anxiety and dejection of spirits.

Such in general is the course of the puerperal fever; the symptoms of which, however, may be often varied, according to the constitution of the patient, the degree of the disease, and its earlier or later invasion. When the woman is naturally weak, or her strength has been greatly reduced by immoderate evacuations after delivery; when the disease is violent, and immediately follows that period; its progress and termination are proportionably rapid and fatal. In such unfortunate circumstances, many have been known to expire within twenty-four hours from the first attack of the disease; nay, there are some instances where the rigor has concluded the scene. The catastrophe, however, is most generally suspended for some days; and the number of these is variable, though the eleventh from the commencement of the

fever may justly be fixed as the period which is usually decisive. In whatever stage of the disease an unfavourable termination may happen, it would seem as if the commencement of the patient's recovery were not marked with any critical revolution of the fever, as depending on an alteration of the humours; but that the cure is gradually effected, either by a spontaneous vomiting, or a long-continued discharge by stool of that porraceous matter, the existence of which in the stomach is usually evinced at the first attack of the disease. The most unfavourable prognostic, therefore, arises from such a weakness of the patient as renders her unable to support so tedious an evacuation as that by which the fever is overcome. When the lochia return to their former state, when the swelling and tenderness of the abdomen abate, and there is a moisture on the skin, we have reason to hope for a happy termination of the disease.

Though the puerperal fever may generally be ascertained from the description which has been given, and chiefly by that remarkable tenderness of the abdomen which particularly distinguishes it; yet, as some of its symptoms may be confounded with those arising from other diseases, and which require a different method of cure, it will be proper to mention here the circumstances whereby it may be known with greater certainty.

The pains of the abdomen, attending the child-bed fever, may be distinguished from those called *after-pains*, by their uninterrupted continuance through the course of the disease, though sometimes they suffer exacerbations: whereas, in the latter, they often totally intermit. They are also distinguishable by the absence of fever with concomitant symptoms in the one, and their evident existence in the other.

Many circumstances evince a dissimilarity between the puerperal and miliary fevers, notwithstanding the symptoms of anxiety and oppression are common to both; inasmuch that the nature of the approaching disease may be ascertained at the commencement of its attack. In the puerperal fever the rigor is more violent, of longer duration, and not interrupted, as in the other. The pulse is fuller and stronger; the skin is more hot; and the tongue, whether moist or dry, though generally the latter, is not of a white but brownish appearance; and the urine is also higher coloured. Eruptions, which are critical in miliary fevers, procure no mitigation of the puerperal fever, and cordials generally increase it.

When the original attack of the puerperal fever happens to coincide with the febrile commotion which is excited in child-bed women by the milk, the nature of it may at first be misapprehended; but the concomitant symptoms, and greater violence of the disease, must in a short time dissipate such an error.

From all the most accurate accounts of this disease, and from

the period at which it generally commences, there seems reason to conclude, that it owes its rise more immediately to accidents after delivery. For it is allowed that it may follow a labour under the best and most favourable circumstances, though endeavours to dilate the os internum are supposed frequently to produce it. The more immediate causes generally assigned by authors are a stoppage of perspiration, the too free use of spices, and the neglect of procuring stools after delivery; sudden frights, too hasty a separation of the placenta, and binding the abdomen too tight. The putrid appearance, however, which this disease so soon assumes, affords ground to suspect that the predisposing cause of it is a vitiated state of the humours; for it is generally observed to be most prevalent in an unhealthy season, and among women of a weakly and scorbutic constitution.

Within these few years this fever has been treated of by several writers, most of whom have differed from each other in their sentiments of the nature of the disease. The first in the order of publication is Dr. Denman, who seems to be of opinion that it may derive its origin either from a redundancy or too great acrimony of the bile, the secretion of which appears to be much interrupted in the time of gestation. In Dr. Manning's treatise on this fever, he mentions its being highly probable that such a cause contributes greatly to produce the disease, especially where the putrid tendency of the humours is increased by unwholesome air and diet.

It has likewise been the fate of the puerperal fever, that no disease has more divided the sentiments of physicians in regard to the method of cure. "The apparent indications and contraindications of bleeding and other remedies, arising from the complication of inflammatory and putrid symptoms; the equivocal appearance of the vomiting and purging, as whether they be critical or symptomatical; and the different causes whence symptoms similar to each other may arise in pregnant women; all these circumstances concur to involve the subject in great obscurity and indecision. If we carefully attend to the several characteristics of the disease, however, so as to be able to distinguish it from every other puerperal complaint, and observe at the same time the usual manner of its declension, our judgment may be guided in the method of cure by the salutary efforts of nature. But in order to obtain a clearer view of the genuine indications, it will be proper to consider them under the several lights in which they have been generally agitated by authors.

One of the most essential points to be ascertained in the cure of the child-bed fever, respects the propriety of bleeding. A free use of the lancet has been generally regarded as the most successful expedient in practice; and there are some instances of critical hemorrhages which would seem to confirm its utility. But Dr. Denman thinks we may safely affirm from experience,

that for one who will be benefited by large bleeding, a much greater number will be injured, and that even almost irretrievably. Nor can this seem surprising, when we consider the situation of child-bed women. In most, the evacuations consequent upon delivery are sufficient to diminish any undue superabundance of the fluids; and if, as frequently happens, the disease be produced by too hasty a separation of the placenta, the consequence of which is generally a very copious discharge of blood, we can never suppose that nature will be assisted in overcoming the febrile commotion, by the farther evacuation of the vital fluid, through the defect of which she is now rendered unequal even to the ordinary support of the animal economy. We may appeal to every practical physician, how much he has known the pulse to sink, and what a train of nervous symptoms he has observed to succeed an excess of the discharge above mentioned. Besides, it is an axiom in physic, that a remedy which cures any disorder will always prove sufficient to prevent it; and therefore, if bleeding were the proper cure in the child-bed fever, the disease ought to have been prevented by a large evacuation of blood, when that happened previous to its seizure. Experience, however, in this, as in all other diseases, is the only unerring guide we can follow; and whoever regulates his practice by fact and observation, will be convinced that bleeding, especially in a large quantity, is, in general, very far from being attended with success. Bleeding is seldom proper, except in women of plethoric constitutions, and in whom the signs of inflammation rise high. Nor even in such patients ought it to be repeated without great caution, and the existence of strong indications. Bleeding, when used in proper circumstances, may unquestionably palliate the fever; but that it often shortens the duration of it appears to be a matter of much doubt. On this account the practice becomes still more suspicious and exceptionable, when we consider that by venæsection improperly used, the person's strength may be so far reduced as not to support the tedious looseness by which the disease is generally carried off. Though bleeding, however, ought in general to be used with great caution, there are certainly many cases in which it is both necessary and advantageous.

The genuine nature and effects of the looseness in this disease is another controverted point of the highest importance, and which merits the most attentive enquiry. Physicians, observing that women who die of the puerperal fever are generally molested with that evacuation, have been induced to consider this symptom of the most dangerous and fatal tendency; and what, therefore, we should endeavour by every means to restrain. In this opinion, however, they would seem to have been governed by too partial an observation of facts. For experience certainly authorises the assertion, that more women appear to have recovered of the child-bed fever, through the intervention of a diarrhoea, than have been destroyed by that cause. If it also be considered,

that purging is usually almost the only sensible evacuation in the more advanced state of the disease, and is that which accompanies it to its latest period, we shall have the strongest reason to think that it is critical rather than symptomatical, and ought therefore to be moderately supported, instead of being unwarily restrained. Nay, the advantage which is found to attend vomiting as well as purging, in the earlier stage of the disease, would seem to evince that the matter discharged by these evacuations is what chiefly foment the disease. Emetics and purgatives, therefore, in the opinion of Dr. Manning, are the only medicines on which any rational dependence is to be placed in this fever; at least, they are certainly such as are found the most successful. It is an established rule in practice to prescribe a vomit at the beginning of every fever attended with any nausea or loathing of the stomach, and where there is not any reason to apprehend an inflammation of that organ. Nor does the state of child-bed women afford the smallest ground for prohibiting our recourse to the same expedient in answering a similar indication.

It is so seldom a physician is called during the rigor preceding the puerperal fever, that he has few opportunities of trying the effects of remedies in that early state of the disease. When such occur, however, we should endeavour as much as possible to abate and shorten that period, as the succeeding fever is generally found to bear a proportion to the violence and duration of it. For this purpose, warm diluting drinks should be plentifully used, with a small quantity of volatile spirits or brandy. When Dr. Manning apprehended such an accident, he sometimes ordered the nurse to give immediately a dish or two of warm sack-whey; taking care that it was not too strong, which is a caution that ought always to be remembered: for though a freer use of the more cordial and spirituous kinds of liquors might perhaps soon abate the rigor, there is danger to be feared from their influence on the approaching fever, especially in women of a strong and healthy constitution. In all cases, warm applications to the extremities, such as heated bricks, towels, or toasted grains in a linen bag, may be used with perfect safety, and some advantage.

When the hot fit is advanced, the first thing Dr. Manning orders is some emollient injection, as chicken-water, or water and milk, which ought to be frequently repeated through the course of the disease. These prove beneficial, not only by promoting the discharge from the intestines, which seems in fact to be the solution of the disease; but also by acting as a kindly fomentation to the uterus and adjacent parts. With this intention they are particularly serviceable when the lochia are suppressed. Great care, however, is requisite in administering them, on account of the tenderness and inflammatory disposition, which at that time render the parts in the pelvis extremely susceptible of pain.

The next step in the method of cure ought to be, to promote

the discharge of the morbid matter both by the stomach and intestines. This intention is best answered by the following remedy prescribed by Dr. Denman :

(No. 21.) \mathcal{R} Antirr. tartar. gr. ii.

Cetæ præp. \mathfrak{z} i.

Intime misceantur et ft. pulvis.

Of this Dr. Denman gives from two to six grains, and repeats it as circumstances may require. If the first dose do not procure any sensible operation, he repeats an increased quantity at the end of two hours, and proceeds in that manner, not expecting any benefit but from its sensible evacuation.

Should the disease be abated, but not removed (which sometimes happens), by the effect of the first dose, the same medicine must be repeated, but in a less quantity, till all danger be over. But if any alarming symptoms remain, he does not hesitate one moment to repeat the powder, in the same quantity as first given ; though this is seldom necessary, if the first dose operates properly.

"It is to be observed," says Dr. Denman, "that as the certainty of cure depends upon the proper repetition of the medicine, the method of giving it at stated hours does not appear eligible. If the first dose produce any considerable effect by vomiting, procuring stools, or plentifully sweating, a repetition of the medicine in a less quantity will seldom fail to answer our expectations ; but great judgment is required in adapting the quantity first given, to the strength of the patient and other circumstances. We are not to expect that a disease, which from the first formation carries so evident marks of danger, should instantly cease, even though a great part of the cause be removed."

Frequent effervescing saline draughts ought also to be given, which not only promote the evacuation by the intestines, but likewise increase the salutary discharges of urine and perspiration. These medicines are particularly serviceable in subduing the remains of the fever, after its violence has been broken by the more efficacious remedies above mentioned ; but when they are used even in the decline of the disease, gentle laxatives of rhubarb and magnesia, as advised by Dr. Denman, ought to be frequently interposed ; since, as he justly observes, without stools we can do little service.

Notwithstanding the discharge by the intestines appears to have the most salutary effect in this disease, yet when the stomach has not been properly unloaded of offensive matter, though a great nausea and sickness had indicated the expediency of such an evacuation at the beginning of the fever, the continuance of the looseness is sometimes so long protracted as in the end to prove fatal. In this alarming state of the disease, when the stools are very frequent and involuntary, and all appearances threaten danger, Dr. Denman says, that a moderate clyster of chicken-water injected every one, two, or three hours, or as often as possible without fatiguing the patient too much, with the follow-

ing draught taken every six hours, has produced better effects than could be expected :

(No. 22.) ℞ Pulv. rad. ipecacuan. gr. i.

Confect. opiat. ʒj.

Aq. menth. fativ. vel

Cinnamon. ʒiſs. M. f. Haustus.

While these medicines are using, we should endeavour to mitigate the pains of the belly by relaxing applications: (Vide No. 116. vol. I.) During the course of the disease, the patient ought to drink freely of diluting liquors, and abstain from every thing of a heating quality, unless great faintness should indicate the use of a small quantity of some cordial medicine.

Such is the practice recommended in this disease by Dr. Denman. We shall now take a cursory view of the sentiments of succeeding writers on this subject.

According to Dr. Hulme, the proximate cause of the puerperal fever is an inflammation of the intestines and omentum; for the confirmation of which opinion he appeals to dissections. He supposes the chief predisponent cause of the disease to be the pressure of the gravid uterus against the parts above mentioned. The omentum, says he, in the latter stage of pregnancy, must either be flat, which is its natural situation, or be rumpled or carried up by the gravid uterus in folds or doublings. When the latter is the case, which he observes is probably not seldom, the danger of a strangulated circulation will be greater.

Mr. White, who has also written on this disease, judiciously remarks, that were Dr. Hulme's hypothesis well founded, the disorder ought rather to take place before delivery, and be immediately removed at that period: that it would likewise most generally happen to women at their first labour, when the abdominal muscles are less yielding, and the pains more violent; the contrary of which is most frequently experienced to be the case.

It also deserves to be remarked, that, upon Dr. Hulme's supposition, we cannot account for the disease being more common and fatal in large towns and in hospitals than in the country and private practice, while other inflammatory disorders are more endemic among those who live in the latter than the former situation. Even admitting the friction of the intestines and omentum against the uterus to be as violent as Dr. Hulme supposes, is it not highly improbable that any inflammation could be occasioned by the pressure of such soft substances upon each other? Or, were this effect really produced, ought not the puerperal fever to be more common and fatal after the most laborious deliveries? But this observation is not supported by experience.

Dr. Hulme, in favour of his own hypothesis, alleges that it gives a satisfactory answer to the question, "Why all lying-in women have been, and ever will be, subject to this disease?" In this proposition, however, the doctor supposes such an universality

of the disease as is not confirmed by observation. It is affirmed upon undoubted authority, that in many parts of Britain the puerperal fever is hardly known; whereas, were it really produced by the causes he assigns, it would be equally general and unavoidable.

But how peculiar soever this author's sentiments are in respect of the proximate cause of this disease, they have not led him to any method of cure different from the established practice. On this subject Dr. Hulme divides his observations into two parts, comprehending under the former the more simple method of treatment, and under the latter the more complex. He sets out with remarking, that the patient being generally costive at the beginning of the disease, an emollient opening clyster will often give immediate relief; but if this should not prove effectual, recourse must be had to cathartics. Those which he found answer his purpose best, were the *sal catharticus amarus*, the *oleum ricini*, *animon. tartar.* and antimonial wine. When the bowels have been sufficiently cleared and the pain abates, he advises encouraging a gentle diaphoresis by medicines which neither bind the body nor are heating; such as small doses of ipecacuana, emetic tartar, and antimonial wine, combined with an opiate in a moderate dose, and given once or twice in the course of twenty-four hours; administering the saline draughts in the intermediate spaces. If, preceding or during this course, a sickness at stomach or vomiting attend, he advises assisting the efforts of nature, by drinking plentifully of camomile tea, warm water, or any other diluting liquor. He concludes with recommending a cooling regimen, rest of body, and tranquillity of mind; prohibiting all kinds of bandage upon the abdomen, and enjoining particular attention to the state of the bowels, which ought to be kept gently open for some time, even after the disorder seems to be gone off, till the patient be quite out of danger.

So much for the simple treatment: we now proceed to the second part, where he describes the method of practice when the disease is in its more irregular and complicated state.

When a diarrhoea accompanies the disease, he observes that it ought by no means to be checked, but supported, by ordering the patient to drink plentifully of mild aperient liquors. If the pain of the hypogastric region be attended with stitches in the sides or over the pit of the stomach, and a pulse that resists the finger pretty strongly, he remarks that bleeding would then be highly necessary: declaring, however, his opinion, that, in the puerperal fever, bleeding is to be considered only as a secondary means of relief, though the first in point of time; that it ought to be assisted with great caution; and that the greatest dependence is very to be placed upon evacuations by stool.

dange. White, above mentioned, imputes the puerperal fever to water if possible

a putrescent disposition of the humours contracted during pregnancy, and aggravated by the hot regimen commonly used by women in child-bed. In conformity to this opinion, the chief means which he recommends for preventing the disease is a cool regimen and free circulation of air, which he evinces to be of the greatest importance. In respect of bleeding, he informs us, that, upon the strictest enquiry, he cannot find that those who have bled the most copiously have had the greatest success, either in private or hospital practice. He even seems to question the propriety of this evacuation in any case; but approves of emetics, cathartics, and clysters, for cleansing the *prima via*, and likewise of such medicines and diet as will correct the putrid humours: adding, that an upright posture and free ventilation are at all times useful, and absolutely necessary, both for the prevention and cure of the disease.

Another writer who treats of the child-bed fever is Dr. Leake, who has published the result of his observations on this disease from April, 1768, to the autumn of the year 1770; but chiefly from December, 1769, to May, 1770, during which period the child-bed fever prevailed much about London.

Dr. Leake tells us that this fever generally commenced the evening of the second or morning of the third day after delivery, with a rigor or shivering fit. Sometimes it invaded soon after delivery; and at other times, though rarely, it has seized so late as the fifth or sixth day. Now and then it seemed to be occasioned by catching cold, or by errors in diet; but oftener by anxiety of mind. Sometimes the thirst was great; though the tongue had, in general, a better appearance at the beginning than is common in other fevers. It was seldom if ever black or very foul; but, as the disease advanced, became white and dry, with an increase of thirst; and at last was of a brownish colour towards the root, where it was slightly covered with an inspissated mucus. The loss of strength was so great and sudden, that few of the patients could turn in bed without assistance even so early as the first or second day after the attack. The lochia, from first to last, were not obstructed, nor deficient in quantity; neither did the quality of this discharge seem to be in the least altered from its natural state; a presumption, says the author, that the uterus was not at all affected. Of this he was convinced by making a considerable pressure above the pubes with the hand, which did not occasion pain; but when the same degree of pressure was applied higher, between the stomach and umbilical region, it became almost intolerable. A perfect crisis seldom if ever happened in this fever, which he imputes to the great oppression of the vital powers, whereby they were rendered unable to produce such an event. When the disease proved mortal, the patient generally died on the 10th or 11th day from the first attack of the disease. Those who died of the fever, the omentum was found suppurated.

an inflammation of which part, or of the intestines, Dr. Leake concludes to be the proximate cause of the disease.

In consequence of this idea of the cause of the disease, Dr. Leake affirms that venæsection is the only remedy which can give the patient a chance for life. But, though it be the principal resource to be depended upon at the beginning of the fever, he observes that it will seldom prove of service after the second or third day; and, if directed yet later, will only weaken and exhaust the patient; when, matter having begun to form in the omentum, the progress of the disease can no longer be prevented by that evacuation. At this period the blood begins to be tainted by the absorption of the purulent fluid; and the fever, from being inflammatory, is changed into one of a putrid nature.

After bleeding in such a quantity as the symptoms require, he advises that the corrupted bile be evacuated and corrected as soon as possible; that the diarrhœa, when excessive, be restrained by emollient anodyne clysters and gentle sudorifics, or even by opiates and mild astringents, when the patient's strength begins to sink under the discharge; and, lastly, that where the signs of the putrefaction or intermission take place, antiseptics and the Peruvian bark may be administered.

The great uniformity of the symptoms in all Dr. Leake's patients might authorise an opinion, that the fever which he describes was in a great measure a disease *sui generis*, and depended much upon the constitution of the air preceding and during the period in which the fever prevailed.

Dr. Kirkland has made some judicious observations on this subject. He rejects the opinion that the puerperal fever is a disease *sui generis*, and arises always from the same cause. The particular situation of child-bed women, he acknowledges, occasions a similarity in the appearance of all the febrile symptoms; but he affirms that the same kind of fever may be produced by various causes; for instance, by an inflammation of the uterus or abdomen, by putrid blood or other matter, and putrid miasma. The symptoms, he observes, will vary according to the time of seizure. If the fever happens in three or four days after delivery, all the symptoms usual to the situation of the patient will make their appearance; but if it do not invade till the milk has been secreted, and the lochial discharge be nearly finished, the symptoms, if the breasts are properly drawn, will, for the most part, be those only which are common to that kind of disorder by which the fever has been produced.

With respect to the cure of puerperal fevers, Dr. Kirkland advises the antiphlogistic method when they arise from inflammation; but when this method fails of success, and a diarrhœa supervenes, the disease has changed its nature, having become more or less very dangerous, and requires a very different treatment. His observations relative to the management of the diarrhœa water possibly

merit attention. No one, says he, would purge and bleed to cure the colliquative fever arising from the absorption of matter in large wounds; and yet the only difference is, that in the puerperal fever the matter absorbed from the uterus, &c. acts with more violence, because the blood is commonly thinner, and the habit in a more irritable state. We see, continues he, that absorbed matter purges as effectually as if any purging medicine had been given by the mouth; and may we not therefore do harm by additional purging, when there has been a large evacuation, especially as purges in this case are incapable of entirely removing the *fomes morbi*?

He considers the Peruvian bark as the principal remedy, as soon as the pulse sinks, the heat is lessened, and the stomach will bear it. If the bark increase the diarrhoea beyond moderation, he joins with it small doses of laudanum; but if the diarrhoea should entirely stop without the fever going off, in place of laudanum he advises a proper quantity of rhubarb. Should the diarrhoea, notwithstanding the use of the medicines proposed, become so violent as to endanger the patient, he joins Mr. White in recommending the columbo root, which is a warm cordial, and removes the irritability of the stomach and intestines more powerfully than any other bitter he knows.

Of this disease also, as it appeared in Derbyshire and some of the adjacent provinces, an account has been published by Dr. Butter. Concerning the causes and nature of the disease, he observes, that pregnancy seems to add much to the natural debility of the female constitution; because at this period women are often subject to a train of nervous symptoms, which never molest them at other times. During gestation, likewise, the appetite is for the most part keen, while the digestion appears to be impaired; and this weakness is increased not only by improper food, of which the woman is frequently desirous, but also by the inactivity attending her situation. To these circumstances, it is added, that the intestinal passage being interrupted by the uterine pressure, costiveness generally prevails. From the several observations here enumerated, Dr. Butter concludes, that the proximate cause of the puerperal fever is a spasmodic affection of the first passages, with a morbid accumulation in their cavity: and upon this supposition he endeavours to account for the various symptoms of the disease.

In treating of the method of cure, he lays down two indications; the former of which is to promote two, three, or four stools daily, in a manner suited to the strength of the patient, till such time as they resume a natural appearance. The second indication is to relieve all uneasy symptoms, such as heat, thirst, head-ach, &c.

With respect to the opinion entertained by Dr. Butter of the

cause of the puerperal fever, it nearly coincides with that of Mr. White. But however plausible it may appear, we are not entirely satisfied that a disease attended with so peculiar symptoms as the puerperal fever, can depend principally upon an irritability, which is not restricted either to the pregnant or puerperal state.

The late Dr. Thomas Young, professor of midwifery in the university of Edinburgh, although he published nothing on the subject of the puerperal fever, wrote a very ingenious dissertation respecting it, which was read in the Philosophical Society of Edinburgh. In that dissertation, after giving a very accurate account of the symptoms of the disease, which coincides very nearly with the account given by others, he endeavours to shew, that the puerperal fever, strictly so called, is in every instance the consequence of contagion; but he contends that the contagious matter of this disease is capable only of producing its effect, in consequence of a peculiar pre-disposition given by delivery and its consequences. In support of this doctrine, he remarks, that for many years the disease was altogether unknown in the lying-in ward of the Royal Infirmary at Edinburgh; but that after it was once accidentally introduced into the hospital, almost every woman was, in a short time after delivery, attacked with it; although prior to her delivery she may have lain even for weeks together, not only in the same ward with the infected, but even in the very next bed. He remarks, that it was only eradicated from the hospital in consequence of the ward's being entirely emptied, thoroughly ventilated, and new painted. After these processes, puerperal females in the hospital remained as free from this disease as formerly. The puerperal fever, according to Dr. Young, has very generally a strong tendency to the typhoid type; although he allows, that in the beginning it is not unfrequently attended with inflammatory symptoms, and even with topical inflammation, particularly in the intestinal canal. On this idea, he considers the puerperal fever as admitting of the same variety of treatment with other affections depending on contagion, in which sometimes an inflammatory, sometimes a putrescent, tendency prevails; such, for example, as small-pox or erysipelas. But from the prevailing putrescent tendency in this affection, he considers the free access of cool air, with the liberal use of antiseptics, as being very generally requisite.

It deserves to be remarked, that though the several writers who treat of this subject have conducted their method of cure conformably to their particular idea of the cause of the disease, respecting which their sentiments are very different, they seem to have been equally successful in the treatment of their patients. Indeed the several writers differ less from each other in their method of cure than might be expected, where so great an opposition of theoretical sentiments prevails. For after endeavouring

to establish indications corresponding to their particular systems, those who contend for the expediency of promoting the intestinal discharge dissuade not from a recourse to phlebotomy when the disease is attended with inflammatory symptoms; while, on the other hand, the most strenuous advocates for bleeding admit the utility of the former evacuation. It appears, therefore, that a due regulation of the alvine discharge is necessary through the whole course of the fever, but venæsection only sometimes.

The following cases, which fell under the notice of Dr. Leake, furnish many valuable facts relative to this formidable disease, for which reason we insert them nearly in his own words.

CASE I.—Elizabeth Waters, a young woman of a strong healthy habit, aged twenty-one, was delivered in the Westminster New Lying-in hospital, April the 7th, 1768. On the fourth day after, she complained of head-ach, which she said was owing to her being disturbed by another patient in labour, who lay near her in the same ward: her pulse was tolerably good, and neither very full nor frequent; but, as her head-ach continued till the next morning, eight ounces of blood were then taken from the arm, which afforded her much relief. She had milk in her breasts, and the lochia were discharged in due quantity, without any pain or tension of the belly. Two days after, the pain in her head returned with violence, attended with thirst and fever, for which she lost seven ounces more blood: she took a laxative mixture, which had its proper effect; and afterwards the saline draughts every four or five hours, from which she seemed better; but, as the pain in her head still continued, the doctor directed leeches to her temples the next evening, which gave her ease.

She was apparently much better for a few days, her appetite being good, and her aspect cheerful; but soon after relapsed, and was seized with severe and excruciating pains, like those of acute rheumatism, in her limbs and body: she became quite helpless, and was not able to turn herself in bed without assistance.

"I attended this patient," says Dr. Leake, "with Dr. Bricken-den, one of the physicians of the hospital. We directed antimonial powders, which she took occasionally, but without much relief, as the pains continued, with a slow, lingering fever, for seven or eight days; and, when they abated, were succeeded by a number of bluish discolorations on the skin, which were terminated by abscesses in different parts of her body. As they advanced slowly, and did not point with tension and redness, but were soft, and of a pale livid hue, we directed the bark, with wine and good nourishment, to quicken the circulation and assist nature in bringing them forwards, for they plainly appeared of the critical kind; but, notwithstanding they were constantly poulticed twice a-day, not one of them came to suppuration, even at the end of five weeks from the beginning of the disorder:

she was therefore removed to the Westminster hospital, where the abscesses, in number eighteen, as I was informed, were opened; and, after remaining some weeks there, she at last recovered."

CASE II.—Elizabeth Becket, aged twenty-six, and of a healthy constitution, after a difficult labour, which lasted several hours, was delivered of a dead child at the hospital, February the 18th, 1769. She was affected with head-ach, and sickness at stomach, from the day of delivery, but did not vomit.

Feb. 19th. Her pulse being frequent, and somewhat full and strong, and the head-ach violent, eight ounces of blood were directed to be taken away; an emollient clyster was then administered, and she afterwards took the saline draughts, with sperm. ceti, every five or six hours. Towards evening she had four bilious stools, and appeared better.

20th. Her thirst was excessive, her tongue white and dry; she perspired little, and had three evacuations by stool; she diluted plentifully with weak tea, and took her medicines as before.

21st. Slept little, her eyes were blood-shot and prominent, and her head-ach not abated; her skin was dry; and her pulse being stronger than usual in such cases, eight ounces more blood were taken away.

22d. She slept the preceding night; her head-ach greatly relieved, and all the febrile symptoms manifestly abated; notwithstanding, she remained weak and helpless, and had involuntary stools for a few days after; but, as her strength increased, this inconvenience went off, and in a fortnight's time from the first attack she perfectly recovered.

The milk continued till the fifth day, and the lochial discharge did not seem altered from its natural state.

"I would not here have it inferred," says the doctor, "that these two patients recovered because bleeding was directed; but rather from their having this fever when the season was not epidemical; for I have already remarked, that the attack is not then so violent, and all the subsequent symptoms are less severe. The shivering fit in the beginning is generally less, and the diarrhœa and bilious vomiting are either inconsiderable, or do not appear at all; the pulse is neither so quick nor weak, and the disease, instead of being terminated about the tenth or eleventh day, is often protracted beyond that period, from acute becoming truly chronic, and then seldom proving fatal."

CASE III.—Juliana Thompson, aged twenty-one, and of a delicate habit, having received a stroke on her belly, was suddenly seized with labour, and delivered in a chair as she was coming to the hospital, Dec. 7, 1769.

She continued tolerably well for the two first days, but was languid and dejected in spirits, having had a slight uterine hæ-

morrhage from the time that she received the hurt to that of being delivered.

Dec. 10th. Was feverish and thirsty, and complained of great pain in her head; there was no appearance of milk, and the lochia were discharged in natural quantity. She took lenitive elect. with oil of almonds, which procured her two or three evacuations; thirst and fever were abated, and head-ach was much relieved.

11th. Continued better, and was able to sit up in bed.

12th. Her face was florid; her cheeks were beset with a deep crimson colour, and the pulse was quick and weak; the tongue looked clean, though her thirst was intense; she diluted plentifully with tea and barley-water; the saline mixture with sperm. ceti, was given occasionally, and a clyster of beef-water directed to be administered. Towards evening difficulty of breathing came on, with oppression at her breast, and pain in her left side.

Dr. Leake and Dr. Ford directed the tartar emetic, in the third part of a grain, to be given every four or five hours, and a blister to be applied to her side; the emollient clyster was also repeated.

She had six or seven motions in the night, and the next day appeared easier, but was languid and weak; her pulse continued very quick, and the blister did not rise. As there was sediment in her urine, with signs of remission, they thought it advisable to try the bark in decoction; but it purged her immoderately, although the simple cinnamon water was added, and therefore it was left off.

Next day she complained of pains shooting downwards from her stomach to the navel, for which a volatile liniment was applied; but, as it did not procure much relief, she had a warm bath the day following, a long flannel gown being next her skin; she was afterwards put into a warm bed, and supplied with beef-tea and other fluids, in order to encourage perspiration. Bladders, half filled with warm water and wrapped in flannels, were applied to her stomach and sides, where she still complained of pain and oppression; and the emollient clysters were also continued, with tinct. opii, gtt. xxx.

The next day, her belly began to swell, though the purging still continued; she had partial faint sweats on her breast and face, and was now extremely weak, though perfectly sensible, but could take nothing except nourishment for several days before her death, which happened on the 25th of December, being the fifteenth day from the time of the febrile attack.

CASE IV.—Mrs. Y. a lady near the Abbey, in Westminster, young, and of a strong and healthy habit, after a labour perfectly natural, was suddenly attacked with a violent shivering fit, the third day after delivery, being the 1st of January, 1770. She

was also affected with a thrilling uncommon sensation, as if a cold wet sheet had been wrapped round her body.

She complained of head-ach, and was sick at stomach; during the excess of febrile heat, her pulse beat a hundred and thirty strokes in a minute, and was more full and strong than is usual in this fever; her countenance was florid, and much altered from its natural state, having an unusual stare with her eyes.

Small portions of emetic tartar, viz. the fourth part of a grain, were given with the saline mixture, every four hours: she diluted plentifully with barley-water and balm-tea, but did not perspire.

On the second day after the attack, a violent bilious purging came on; the antimonial powders were then given by longer intervals; the saline mixture was discontinued, and emollient clysters were directed. She took rice-water, and the white decoction for common drink.

The fever and diarrhoea continued violent for three or four days; her belly swelled, and she frequently complained of much pain at the bottom of her stomach, and towards the navel. Sometimes there seemed to be obscure signs of remission in the morning; but, towards evening, the fever again returned with violence.

"She apparently grew worse," says Dr. Leake, "and, as I was at that time ill, and unable to give her due attendance, I desired Dr. Hunter might be called in, which was accordingly done. He directed eight ounces of blood to be taken away; the clysters to be repeated, and a bladder, filled with scalded bran, to be applied warm to the umbilical region. The next day I met Dr. Hunter and Dr. Hugh Smith: the saline draughts, with ʒʒ of conserve. Damocratis, were directed every six hours, and in other respects much the same method was pursued as before.

"When Dr. Smith visited this patient with me the day following, we found her delirious, and therefore, instead of the conserve. Damocratis, ʒ j. of the pulv. contrayer. c. was added to each saline draught, which was ordered to be continued as before: four spoonfuls of tincture of roses were given by intervals, and clysters of chicken-water directed to be administered frequently. The two following days I was prevented from seeing her: during which, she took medicines of the warm cordial kind, but without perspiration, or any abatement of the febrile symptoms.

"A few days before her death, she was delirious; her eyes were blood-shot, and filled with involuntary tears; a military eruption appeared very thick on her breast and body; and her stools, which were frequent and very foetid, came away insensibly. Leeches were then applied to her temples; the clysters were repeated; and her strength was supported by nourishment and wine, but without a salutary effect; for on the 12th of January she died, and several hours before her death became perfectly sensible.

"The lochia were discharged in due quantities; but there was no secretion of milk.

"The signs of putrefaction in this patient, before death, were very evident; the smell of the room, for several days after she was buried, being intolerably offensive, notwithstanding it had been thoroughly cleansed, and fumigated with frankincense.

"Purgative medicines, which are found so extremely beneficial in the secondary putrid fever after the small-pox, cannot here be employed to advantage, because of the tenderness of the bowels, and excessive loss of strength from the preceding diarrhoea; so that Peruvian bark, with opiates and frequent nourishment, seem most likely to afford relief, where that is in the power of medicine; but, unfortunately, the state of the patient is generally at this time such, for the reasons already given, as excludes all human assistance.

"Where the stools are excessively putrid, it might be worth while to try the effects of fluids which contain a large quantity of fixed air, given in clysters."

CASE V.—Mary Evans, aged twenty-nine, was delivered, February the 5th, 1770, without any uncommon circumstance attending her labour, which was easy and natural. Her habit of body was apparently good; but, being crooked and narrow-chested, she was subject to habitual difficulty of breathing. She took an anodyne draught, with sperm. ceti, and passed a good night after delivery.

Feb. 6th. She perspired gently, and was free from pain and fever.

7th. At seven in the morning, attacked with a slight shivering fit, which lasted about fifteen minutes, but was not succeeded by any violent degree of feverish heat; she took the antimonial powders, every three or four hours, and fell into a gentle perspiration, which seemed to relieve her; an emollient clyster was also directed.

8th. Rested the preceding night, and continued tolerably easy; she had one bilious stool in the morning, was weak and languid, but free from pain, and got some sleep.

9th. At nine in the morning had a shivering fit, which was relieved by drinking warm fluids, and the application of hot flannels to her extremities and sides; in a few hours, the cold fit in a slight degree returned, and was succeeded by fever, and partial sweats on her breasts and temples; she had some rest the former part of the night, but at two o'clock was waked by violent gripings and tormina in the bowels, followed by nine or ten bilious stools; after which she had ease.

10th. About twelve at noon was seized with great difficulty of breathing, and, in the time of inspiration, affected with intolerably acute pain striking down from the breast to the navel.

but there was no tension or pain in the belly, nor any symptom that could strictly be called uterine, the lochia being neither foetid nor deficient in quantity: her pulse at the same time was quick and unequal; but, considering her great difficulty in breathing, six ounces of blood were taken away, and the following mixture was given occasionally; a broth clyster with gtt. xx. of tincture of opium, was also directed; and she took rice-water, or decoct. alb. for common drink.

(No. 23.) ℞ Laet. ammoniac. ℥vj.
Sperm. ceti solut. ℥ij.
Elix. pægoric. ℥ij. misce.

Fiat mistura cujus fumat cochlearia duo subinde urgente dolore vel dyspnœa.

After bleeding, her pulse became somewhat stronger, and its strokes were more distinct and free; the pain and difficulty of breathing were a little abated, and she passed a tolerably good night with refreshing slumbers.

11th. In the morning, she was weak, but free from pain or much fever, and breathed with considerable ease; about three in the afternoon she became feverish again; and in the evening her pulse was quick, and almost imperceptibly weak; her limbs were cold; and partial clammy sweats overspread her face and temples.

Dr. Leake directed two spoonfuls of the following mixture to be given every two or three hours.

(No. 24.) ℞ Spec. c. scord. c. cum opio ℥j.
Aq. cinnam. ℥vj.
Sp. nucis moschat. ℥j.
Syr. c. cort. aurant. ℥℥ fiat mistura.

An anodyne clyster was directed as before; her extremities were kept warm with hot flannels, and she passed a restless night, being delirious by turns. At four in the morning she had four black foetid stools, which were voided without pain. At seven she was perfectly sensible, and so continued till the hour of ten, at which time she calmly expired, being the fifth day from the febrile commencement.

The lochial discharge was natural, and she had milk at the usual time, which left her soon after the febrile attack.

The following were the appearances on dissection:

After making an incision into the abdomen, from the navel to each anterior angle of the os ilium, and turning down the muscular flaps over the pubes, several ounces of white curd-like pus covered the surface of the intestines; it did not run out when the abdominal cavity was laid open, being of a much thicker consistence than common matter. On further examination, it was found that the greatest part of the omentum was melted down, and formed this purulent concrete; and that the small portion

remaining was much inflamed, and slightly adhered to the intestines. About a pint and a half of putrid fluid, like whey, was found in the cavity of the pelvis, mixed with concreted matter, and bits of black grumous blood, which seemed to have escaped from the eroded vessels of the omentum.

The uterus was contracted to the size of a swan's egg, and shrunk down below the brim of the pelvis: on cutting into its cavity, small flaky pieces of the false chorion were found adhering to its surface, but it did not contain any kind of fluid: in short, this part, as well as the bladder, was perfectly sound, and without the least mark of inflammation, or other morbid affection.

The substance of the liver was also found, but appeared pale, bloodless, and as if it had been par-boiled: the gall-bladder was full of blackish bile.

The stomach and intestines were in their natural state; the first contained half a pint of watery blackish fluid, which smelled like rancid bile; and in the last was found twice that quantity of dark-green fluid, somewhat like that in the stomach. The spleen was large, but sound.

The sternum being raised, the lungs appeared of a livid hue; but, on cutting into their substance, neither pus nor tubercles were found, nor any signs of inflammation; only the left lobe, at its posterior and superior part, slightly adhered to the pleura.

*The veins on the neck and breast, on the left side, were enlarged to three times their natural diameter, and filled with blood of a bluish colour.

As this disease is principally seated in the omentum, and uniformly produces inflammation of that part (Epiploitis), it will strongly enforce a necessity for the early loss of blood, together with the immediate application of blisters to the sides, or even to the umbilical region, to prevent, if possible, a morbid affection of the viscera, which, once begun, is rapid in its progress, and generally fatal in its termination.

CASE VI.—Ann Hewatson, aged twenty-six, and of a delicate habit, was delivered February the 5th, 1770. Her case was somewhat laborious, and the child's birth succeeded by a discharge of grumous blood from the uterus; the placenta came away without assistance, about an hour after delivery; she was easy in the night, and had refreshing sleep.

6th. Being inclined to sleep, took a sperma ceti emulsion without any opiate; perspired gently, had a good night with natural rest, and waked free from pain or fever. The lochial discharge was large in quantity and foetid; but the belly was soft, and without pain.

7th. Continued easy, and had a moderate secretion of milk.

8th. About ten in the morning, after a breakfast of tea, without any evident cause, she was suddenly attacked with rigor,

which shook her whole body like an ague fit ; the shivering lasted about half an hour, gradually becoming less and less intense from its onset.

She took the emetic draught already mentioned, which operated mildly towards evening ; the antimonial powders were given by due intervals. She was extremely feverish, thirsty, and restless at night ; but somewhat relieved by a free perspiration, which came on about twelve o'clock.

9th. Had four bilious frothy stools, preceded by violent pains and gripings in the bowels : an emollient clyster was injected. Her pulse was quick and weak, and the febrile symptoms violent. She had a very restless night, but only one evacuation, and without pain.

10th. In the morning, had nine or ten blackish stools, mixed with mucus, which were extremely offensive, and attended with great pain : her pulse was excessively quick ; she breathed laboriously, as it were by jerks, and complained of great oppression across her breast and stomach, and of pain striking down under her shoulder-blade when she drew her breath. Eight ounces of blood were taken away, and a starch clyster with grt. xxx. of tinct. thebaic. was administered : she now only took rice-water, with a small portion of brandy in it, as every thing else purged her immoderately. Towards evening seemed better, her pulse not so frequent, the pain and feverish symptoms were somewhat abated.

11th. Hot and restless, with faint sweats on her breast, neck, and face. Emollient clyster repeated, without the opiate ; after which she had some sleep.

11. The clyster came away with a bilious stool ; she was manifestly much worse, her pulse being very quick, and thirst intense ; she breathed laboriously, had a fixed crimson colour in her cheeks, and was also much troubled with a cough and viscid phlegm, which she was unable to expectorate ; but found relief by taking the following mixture :

(No. 25.) R Sal. tartar. ʒj.
Succ. limon. ʒiss. Peracta effervescencia, affunde,
Aq. hyssop. ʒvj.
Elix. pargoric. ʒij.
Syr. balsamic. ʒiij.

Fiat mistura cujus sumat cochlearia duo subinde pro re nata.

13th. She was supported by a cordial julep when faint, with light nourishment, and wine given by spoonfuls.

14th. Breathed with great difficulty ; her pulse very quick and weak. She had partial sweats on her stomach, breast, and face, attended with coldness of the extremities, great languor, and all the symptoms of approaching death. She died about two in the morning, being the eighth day after the attack.

The following are Dr. Leake's remarks on this case.

"At the time of the shivering fit," says he, "which happened on the third day, this patient had plenty of milk in her breasts, which afterwards suddenly disappeared, and was totally gone off in the evening, her breasts being then loose and empty: the defect of milk is therefore manifestly a consequence of the morbid cause.

"There is, however, one circumstance, which, although it seems to controvert this opinion, I cannot help mentioning, viz. those who were seized with this fever were not subject to abscesses of the breasts; and of those who happened to have such abscesses, I have never known one die; neither are they subject to diarrhoea, or much symptomatic fever, although the pain attending a suppuration of the breast is often very acute.

"The putrid discharge of lochia in this case appears merely accidental, and only owing to a corruption of a coagulated blood retained in the uterus, from the access of air, like that which came away soon after delivery."

CASE VII.—Elizabeth Gardner, aged thirty-two, was delivered in the hospital the 11th of February, 1770; her labour was natural, and her habit of body strong and healthy, although she had been troubled with a violent cough for several weeks before delivery.

* 12th. Her pulse was full and frequent attended with great thirst, sickness at stomach, and pain in her head and bowels; she took the saline mixture, with sperma ceti, and an emollient clyster was administered: she also drank plentifully of weak tea and barley-water, but did not perspire, and passed the night without sleep.

13th. Dr. Leake visited this patient with Dr. Ford. Her pulse being exceeding quick, and more full and strong than usual, attended with excessive thirst, a violent head-ach, and dry skin, they directed ten ounces of blood immediately be taken away: lenitive electuary was afterwards given, and an emollient clyster, which produced two or three lax motions: she dilated plentifully, but did not perspire, and passed a restless night. The secretion of milk was moderate, and the lochial discharge natural.

14th. In the morning had some refreshing sleep, with gentle perspiration; thirst and fever somewhat abated: she had three evacuations by stool, but still complained much of intolerable shooting pain in her head, especially at the time of coughing: eight ounces more blood were taken away, which was not near so fizy as that first drawn.

15th. Much disturbed by her cough in the night, perspired little, and had no sleep, though her head-ach was somewhat better.

16th. In the evening her pulse was extremely quick, thirst

immoderate, and all the febrile symptoms increased: she was sick at stomach, and had three bilious stools, with severe gripings in her bowels. The antimonial powders were given every three or four hours: about two hours after taking the second, she threw up a large quantity of viscid phlegm, mixed with bile, and in the night had eight or nine black stools, the last very foetid, and mixed with blood and mucus. She was delirious by turns, very restless, and had partial faint sweats on her breast and face.

The yolk of egg, with mucilage of starch, was dissolved in rice-water, and injected as a clyster; and she took the following draught:

(No. 26.) ℞ Sperm. ceti solut. ʒfs.
Pulv. e Tragacanth. C. ʒi.
Aq. cinnam. ʒifs.
Tinct. opii gtt. xv.
Syr. papav. alb. ʒj. fiat Haustus.

17th. Her stomach and bowels were much relieved; she slept in the night, and waked refreshed; her pulse was weak, but equal, and she perspired moderately.

18th. Better in all respects, but complained of great forencfs in her bowels at the time of coughing: she took the anodyne draught at night, and the starch clysters were continued with light nourishment.

19th. Weak, but continued easy; her pulse regular, and she perspired gently. Instead of medicines, she now took calf's-foot-jelly and nourishing broth, to repair her strength.

20th. From this time gradually continued to recover, and, on the 6th of March, she was discharged from the hospital in perfect health.

CASE VIII.—Ann Simms, aged twenty-two, apparently healthy and strong, was delivered on Tuesday, the 6th of March. Her case was somewhat laborious, the child's head being large, and detained several hours within the bones of the pelvis. An emollient clyster was directed in the evening, and she took an anodyne draught; passed a restless night, and without the least perspiration.

7th. Feverish and thirsty, pulse quick and somewhat full, and her skin dry. She took the saline mixture, and diluted plentifully with nitrous drink; a clyster of beef-water was given in the evening; had a very indifferent night, and little rest.

8th. A little better; she had milk in her breasts, and, being costive, complained of head-ach. A cathartic clyster was administered in the evening, which procured two evacuations, and her head was easier.

9th and 10th. Somewhat feverish and restless, though free from pain.

11th. Continued very restless: the pulse was quick, her

tongue white and dry, and her thirst intense, without any perspiration: at night she took a saline draught, with ten grains of nitre and gtt. xv. of tincture of opium; but had scarcely any rest.

12th and 13th. The febrile symptoms continued; and, though she diluted plentifully, her skin remained parched and dry. Six grains of James's powder were then administered, which puked her twice, and afterwards procured her three motions. At night I directed her another powder, and an emollient clyster, with gtt. xxx. of tincture of opium: she had some sleep in the night, but no free perspiration.

14th. In the morning, apparently better, and disposed to sleep; but towards evening was sick at stomach, and threw up a large quantity of bitter, glairy fluid; in the night, she was seized with severe pains in the bowels, followed by seven or eight bilious stools, and afterwards had some sleep.

15th. Her pulse quick, skin dry, and her hands tremulous; her looks were wild and staring, and her cheeks beset with a deep crimson hue; she breathed laboriously, and complained of great pain in her side and belly towards the navel: at night, she had six black watery stools; after which an anodyne draught and a starch clyster were directed: she seemed relieved, and slept for several hours.

16th. The pain in her belly and side was but little abated; she was extremely hot and restless, and could not sweat. I directed three spoonfuls of the following mixture to be given, which produced no perspiration, although she took it every two or three hours.

(No. 27.) R Ammon. præp. 3j.

Succ. limon. recent. express. 3iss misce.

Aq. menth. fativ. 3vj.

Tinct. croci 3iii.

Syr. ejusd. 3fs. fiat mistura.

17th. Much worse in all respects; her pulse being exceedingly quick, and almost imperceptibly weak; cold clammy sweats overpread her breasts and face, which now became pale and death-like; and about twelve at noon she expired.

The lochia were discharged in natural quantity, and she had milk in her breasts till within a day or two of her death.

When the body was opened, the next day in the evening, the inferior lateral portion of the omentum was found much inflamed, its vessels being turgid, and as it were injected with blood; but the greater part of it was destroyed by suppuration: what remained adhered to the small intestines, which were also slightly cemented to each other, where their convolutions came in contact.

The uterus was contracted to the size of a large fist, and lay

at the bottom of the pelvis; the fundus uteri seemed to partake of the general inflammation which had apparently first affected the omentum, and afterwards superficially overpread the intestines, mesentery, and contiguous parts; but, on cutting into its substance, it was perfectly firm and sound, although it had a livid appearance towards the cervix and os internum, which might probably be owing to the violence sustained by those parts in time of labour.

In the cavity of the pelvis was found about a pint of whey-coloured fluid, with three or four ounces of thick matter, which did not uniformly mix with it, but floated in it like curds in whey, together with several bits of black coagulated blood.

The liver was found, but remarkably pale, and the gall-bladder turgid, with a large quantity of olive-coloured bile, in consistence equal to that of honey, and with difficulty squeezed through the cystic duct. The stomach contained about half a pint of black oily liquor, resembling that which was voided by stool.

The contents of the thorax were found, and without any morbid appearance, except a slight adhesion of the right lobe of the lungs to the pleura.

CASE IX.—Ann Cook, aged twenty, of a delicate habit, after easy labour, was delivered in the hospital the 13th of March, 1770. The same evening she complained of sickness at stomach, with pain in her bowels, and passed a restless night.

14th. Continued sick at stomach; took the antimonial emetic draught, and threw up a large quantity of bilious ropy fluid from the stomach; also had one lax stool; after which a broth clyster was injected with thirty drops of tincture of opium. She passed a tolerable night, perspired moderately, and had some refreshing sleep.

15th. Free from pain in the bowels, and had a good night's rest.

16th. Sick at stomach, and vomited a quantity of poraceous fluid; her pulse was quick, and her thirst excessive: she took the antimonial powders every four or five hours; but perspired little, and had a restless night.

17th. In the morning complained of great sickness, and burning heat at stomach, with violent head-ach; and threw up near a tea-cupful of dark-green liquor, which seemed to be almost pure bile: she had also five-bilious motions.

At night, suddenly seized with acute pain in her side, and great oppression at the breast; being likewise almost suffocated with tough phlegm, which she did not bring up: her pulse was exceeding quick and somewhat weak, and her countenance ghastly; but, as she breathed with vast difficulty, seven ounces of blood were ordered to be taken away, and that she should draw in the steams of warm water into her lungs at each inspiration: she

afterwards took one of the antimonial powders, which occasioned her to vomit twice, and gave her two motions. She was extremely weak, but breathed with more freedom and ease; an emollient anodyne clyster was injected, and she was ordered a spoonful or two of warm spiced wine, when faint.

18th. In the morning, she breathed with more ease, and was free from the load at her breast; her pulse beat regularly, but was extremely languid: bladders, with hot water wrapped in flannels, were applied to the soles of her feet; she took light nourishment often, and now and then a spoonful of spiced wine.

19th. Had refreshing slumbers the preceding night, and gained strength: nothing was now given but frequent nourishment.

20th. Continued better; directed the following draught to be taken twice a-day, which greatly increased her strength:

(No. 28.) *R.* Infus. cinchonæ ʒiss.

Sp. cinnam. ʒiii.

Tinct. lavend. comp. gtt. xxx.

Confect. alkerm. ʒi. fiat haustus.

In about a week's time she was much recovered, and went out of the hospital the 2d of April, in perfect health.

CASE X.—Philadelphia Ford, aged twenty-eight, was delivered the 14th of March, 1770, and continued well till the 3d day, when she complained of great pain in her head, with lassitude and inability to turn in bed: her countenance was florid; she had a brown dry crust on her tongue, and unquenchable thirst: her appetite left her, and there was not milk enough to give suck. The medicines usually administered on such occasions had but little effect; but all the febrile symptoms were much relieved by the appearance of a red cutaneous swelling on the joint of her great toe: in a few days, another swelling of a livid colour appeared below her hip; they were poulticed and fomented, but did not suppurate; the last threw off a black mortified slough, and discharged sanious ichor. She was ordered a strong infusion of bark, with tinct. aromat. and, by allowing her wine and good nourishment, she recovered.

CASE XI.—Harriot Trueman, young, and of a strong healthy constitution, May the 2d, was delivered of a monstrous child, which presented with the arm; so that the case was preternatural in a double sense.

As this patient was of a plethoric habit, and subject to cough, seven ounces of blood were taken away, before the delivery was attempted; to prevent, in some measure, the danger of inflammation, which might arise from the violence applied in turning the child.

After delivery, an emollient clyster was directed, and a saline mixture, with spermacei and syrup of poppies, of which she was to take three spoonfuls every four or five hours, as occasion required; she was free from pain, and had a good night.

3d. Perspired gently, continued free from pain and fever, her cough less violent, and she passed her water with ease; the mixture was continued, and a clyster as before given in the evening; she remained easy during the night, and rested well.

4th. Continued perfectly easy, and passed a good night: the lochial discharge was natural, and she had no pain in the region of the uterus.

5th. About three in the afternoon was seized with difficulty of breathing, and oppression across her breast and stomach; seven ounces of blood were immediately taken away, which was exceedingly fizy. The strokes of her pulse were weak, quick, and indistinct after bleeding, but soon became less frequent, and more ample and strong; she found herself much relieved, and could then breathe with freedom; was disposed to gentle perspiration, and refreshing slumbers in the night; the mixture and emollient clyster were repeated. The secretion of milk was moderate.

6th. She continued easy, had a natural evacuation by stool, and slept by intervals.

7th. At four in the morning, her difficulty of breathing and cough returned; she was sick at stomach, vomited up a ropy bilious fluid, and had five black stools. Her pulse was weak, frequent, and intermitting; her breasts subsided, and the milk suddenly disappeared.

She had a powder, with the third part of a grain of the tartar emetic, and a scruple of the pulv. contrayer. c. to be repeated every four or five hours after, if the first had no sensible operation by sweat or vomiting; and also an emollient clyster.

She passed a restless night without perspiration, her belly began to swell, and she had several involuntary bilious stools.

8th. Respiration was frequent and laborious, pulse quick and weak, her skin dry, and she complained much of pains in her sides, and across her belly near the navel, at the time of drawing her breath.

A fomentation was applied to her belly and sides; the powders were repeated, and a starch clyster injected in the evening, with grt. xxx of the tinct. opii.

She took rice-water, with a small quantity of brandy, for common drink, and a spoonful of spiced wine when faint. The involuntary purging still continued, and she had no rest.

9th. Complained of pains in her breast and belly, the difficulty of breathing increased, her pulse was quick and almost imperceptibly weak; she was delirious by turns, had cold clammy sweats on her neck and face, and about four the next morning she expired.

When the body was opened, the greatest part of the omentum was suppurated, and converted into thick matter; the remaining portion being much inflamed and slightly adhering to the folds of the intestines. The cavity of the pelvis and abdomen contained

about three pints of putrid serum, with clots of concreted pus, and small pieces of coagulated blood.

The uterus was much contracted, and shrunk down to the inferior part of the pelvis: its substance was sound, though the os tincæ was somewhat livid; which appearance, not being considered as morbid, has already been taken notice of.

Scarcely any marks of inflammation appeared on the intestines or mesentery; the liver was apparently sound, and the gall-bladder full of yellow bile, which had pervaded its coats, and dyed the contiguous parts of a saffron hue: but this could not be looked upon as a morbid appearance. The stomach contained a pint of blackish fluid, like that voided by stool, and which had the appearance of putrid bile.

On raising the sternum, two ounces or more of matter was lodged upon the mediastinum; and the thorax contained a small quantity of the same kind of whey-coloured fluid as that found in the abdomen. The lungs were apparently sound, only the left lobe adhered slightly to the pleura, at its posterior part.

This woman's child was monstrous: it had no thumbs; the parietal bones were wanting; and not above two ounces of brain was found in the cavity of the skull: the upper part of the scalp adhered strongly to the internal surface of the placenta; so that, when the child was extracted, this part was pulled along with it, though, luckily, it was not attended with any degree of flooding.

CASE XII.—A lady in Holborn, aged twenty-eight, and of a delicate habit of body, was delivered by her midwife on Saturday morning, the 7th of July, 1770. The birth was not attended with any dangerous or uncommon circumstance; she was easy after delivery, and rested well at night.

8th. Towards evening she complained of head-ach, but had several hours' sleep the following night.

9th. Waked in the morning with acute pain in her right side; her head-ach was worse, and about three in the afternoon she had a violent shivering fit, with coldness of the extremities, and great internal heat across her breast and stomach: her pulse became exceeding quick, her head-ach violent, her tongue white and dry, and the pain in her side extremely acute and deep-seated; she breathed laboriously, and had no perspiration, except on the breast and face.

Eight ounces of blood were taken away, and one of the antimonial powders given, which was to be repeated every two or three hours, if the first had no effect. An emollient clyster was administered, and bladders of warm water were applied to the soles of her feet and sides: she passed a restless night, without any abatement of pain or difficulty of breathing.

Two of the powders were taken; the first created nausea, but

did not prove emetic, nor produce any considerable perspiration. The blood was not so fizy as might have been expected.

10th. The pulse being full, hard, and frequent, her skin dry, and respiration difficult and painful, eight ounces more blood were drawn, the powders were repeated every four or five hours, and a blister was applied to the affected side in the evening: she drank plentifully of common emulsion with nitre, to prevent strangury, and relieve her difficulty of making water, which had been troublesome from the beginning.

11th. Had no sleep the preceding night; and, as the pain in her head and difficulty of breathing still increased, she was again bled in the night, to the quantity of six ounces.

She was much relieved soon after this last bleeding; the pain abated; she could then breathe with more freedom, her pulse became more soft and less frequent, and a free and equal perspiration broke out all over her body.

At this time, she began to be troubled with a cough, and was much oppressed with white viscid phlegm, which was expectorated with great difficulty: she had two motions with a large discharge of feces, which came away with the second clyster. The last-drawn blood was uncommonly fizy, and the gelatinous crust on its surface extremely thick and tenacious. She had milk in her breasts, which were drawn twice a-day, and the lochial discharge was natural.

As she perspired freely, the powders were discontinued, and the saline draughts, with oxymel scillit. given every five or six hours. The blister rose well; the emulsion was continued, and the emollient clyster ordered to be repeated as before.

About nine at night, all her feverish symptoms returned; her pulse was exceeding quick, skin dry, her thirst intolerable, and the pain in her side and difficulty of breathing were so violent, that her apothecary was called up in the night, and took away six ounces more blood: one of the antimonial powders was also given, after which she again began to perspire, with an abatement of all the feverish symptoms, and had two or three hours' refreshing sleep.

12th. Something better; but in the evening was attacked with a deep-seated violent pain in her other side, between the breast and axilla, so as almost to prevent her from breathing; her cough was troublesome, and she expectorated with much difficulty; four ounces more blood were drawn, and the following draught prescribed:

(No. 29.) \mathcal{R} Ammon præp. gr. xv.

Succ. limon. \mathfrak{z} iii.

Aq. menth. sativ. \mathfrak{z} j.

Tinct. opii gtt. xij.

Syr. papav. alb. \mathfrak{z} j.

Misce fiat haustus, vesperi exhibendus.

She drank plentifully of thin diluting liquors with nitre; the

clyster was repeated as before ; and by intervals she took the following mixture :

(No. 30) R. Sper m. ceti solut. ℥ii.

Lact. ammon. ℥vii.

Elix. paregoric. ℥iii. fiat mistura.

She had an exceeding bad night, but slumbered a little at times.

13th. - Apparently better, but complained of severe rheumatic pains about her back and loins: her cough was more and more troublesome, and greatly interrupted her rest, but was relieved by the mixture with gum ammoniacum, to which a small quantity of oxymel scillæ was added.

White-wine whey was ordered to be given her in the night, to support her strength ; and she took panada with currant jelly for nourishment.

14th. She had two or three hours' refreshing sleep the preceding night, and the feverish symptoms were somewhat abated ; but, as there was not yet the least sediment or separation in her urine, which was high-coloured, the use of bark was deferred, and the anodyne draught given at night as before, which always eased her cough, and procured sleep.

15th. Her pulse was quick and tremulous, her extremities cold, and her face and breasts were bedewed with a clammy sweat. She breathed laboriously, with convulsive jerks, and complained of great weight and oppression across her breast : though perfectly sensible, she had a wild eager countenance, a trembling hand, and apparently all the symptoms of approaching death.

Ordered her four spoonfuls of a strong cordial julep, and sinapisms to her feet ; her extremities were rubbed with hot flannels, and cloths dipped in brandy were applied to her stomach.

In a few hours she revived, but grew restless, and almost frantic, insisting upon cold water to drink, which was given her : the next day she was still alive, and when visited about one in the afternoon was perfectly sensible, but so weak and languid that she was scarcely able to speak.

A cordial julep was given when faint, and the following draught, with bark, to be taken every two hours, or as often as her stomach would bear ; but, as she had several involuntary motions, five grains of the pil. e styrace were instantly given, which restrained the looseness, and procured some hours' sleep, whilst the bark was prepared.

(No. 31.) R. Decoct. cinchonæ ℥ifs.

Pulv. cinchonæ ʒfs.

Sp. cinn. ʒiij.

Syr. papav. alb. ʒj.

Fiat haustus alternis horis exhibendus.

At eleven o'clock at night, she had taken four draughts, and had little return of fever ; but, as her skin was dry and thirst

intense, she was allowed plentifully of toast and water, which she particularly desired, and swallowed with great eagerness; after which, she gently perspired towards morning, and, growing cooler, began the draughts as before. The urine was amber coloured, but without sediment or separation.

16th. Better in all respects, but very weak, and her rest much disturbed in the night by the cough: draught continued as before, and by intervals wine and light nourishment were given often, and in small quantities.

17th. Continued free from fever, and able to sit up; she had three stools, was much disturbed by her cough, and complained of a sore throat.

She had pil. c styrace three grains, and the draughts were only to be given three times a-day.

There was no remarkable change till the 21st, at which time she was almost unable to swallow, her throat being much worse, and the tonsil glands slightly ulcerated; her cough was troublesome, and several miliary eruptions appeared on her body.

The following draught was given every four or five hours, and her throat was fumigated with the steams of hot vinegar poured on lavender flowers, which gave her great relief.

(No. 32.) R. Decoct. cinchonæ ℥iss.

Extract. cinchonæ. moll. ℥j.

Sp. vitriol. æther. gtt. xx.

Sp. cinnan. ℥iij.

Confect. alkerm. ʒi. misce & fiat haustus.

Her strength was supported by nourishment of easy digestion as often as her stomach would dispense with it, and a little spiced claret was given whenever she pleased.

23d. Removed into the country for the benefit of air. In a few days she was so much better in all respects, as to leave off her medicines, and only took a tincture of bark and cardamoms, as a stomachic, in a strong infusion of tansy.

"This fever," says Dr. Leake, "was complicated with pleurisy in a high degree; a case of all others the most dangerous; and, as pleuretic symptoms sometimes accompany a morbid affection of the abdominal viscera in this disease, perhaps it might reasonably be asked, whether the diarrhoea and inflammation of the omentum, which so usually succeeded the rigor, were not here prevented by early and repeated bleeding?"

"From what may be observed in the foregoing history, it does not appear eligible to wait for a distinct intermission of this fever lest a severe attack of the febrile paroxysm should in the mean time carry off the patient; I think a remission of the symptoms, especially if attended with any critical evacuation, is in general sufficient to justify the liberal and immediate use of the bark; but when they are at first manifestly inflammatory, when bleeding and evacuations

had not preceded, I have often seen it given without any good effect."

CASE XIII.—Sarah Evans, about twenty-one years of age, was delivered in the hospital on Monday, the 19th of November, 1770; she had a natural labour, and was well the two first days after delivery; but on the third day seized with fever, which the matron believed was owing to surprise, as the febrile symptoms appeared very soon after.

As this patient was of a very delicate irritable habit, and lax fibre, it was not thought proper to direct bleeding, particularly as her skin was moist, and her pulse quick and weak.

She took a mixture with aq. ammon. acet. and tinct. opii; emollient clysters were also directed to be frequently administered. After the fever had gradually increased for a few days, she complained of difficulty of breathing, and pain in the side of her belly, towards the navel. Warm flannels were applied to the part affected, and bladders of hot water to her feet.

She drank beef-water, and weak pimento tea for common drink; and, being extremely languid, was allowed a small quantity of white wine and light nourishment by turns.

On the 29th of November she was still weaker; the heart almost ceasing to do its office, and the circulation being at the lowest ebb. The next morning she calmly expired, without any signs of mortal anguish.

On opening the body, evident marks of inflammation appeared, particularly in the abdomen: great part of the omentum was destroyed, and converted into matter; what remained had become gangrenous; its diseased membranous expansions here and there overspread the intestines, and slightly adhered to their surface, which was also inflamed, particularly at their convolutions; those parts, from the additional effect of pressure, being as it were superficially folded together: that portion of the omentum which is inserted round the great curvature of the stomach, was also considerably inflamed.

The uterus had a natural appearance, and was perfectly sound, as well as all the parts peculiar to it.

The liver was also unaffected, except its peritoneal coat, which, being dissolved by the inflammation, lay on its surface in a tender gelatinous state. The gall-bladder was turgid with bile.

The mediastinum was inflamed, but the lungs were perfectly sound, and free from adhesion to the pleura.

The whey-coloured putrid fluid contained in the abdomen was nearly the same in quantity and appearance as that in the former cases.

Where the pulse was extremely soft and weak, and the circulation languid, it is difficult to account for so sudden and high a degree of inflammation, as to produce a collection of matter, or any infla-

matory affection of the abdominal viscera; but so it was: and therefore, in all such cases, where bleeding seems improper, it will be requisite immediately to apply sinapisms, or a large blister, to the umbilical region.

CASE XIV.—Hannah Jeffries, of a strong healthy constitution, the fourth day after delivery, which was natural, was seized with a shivering fit, succeeded by head-ach and great sickness at stomach, with six bilious stools; she was affected with universal languor and dejection of spirits, was very restless, and had a smart quick pulse.

A clyster with beef-water was given, and she diluted plentifully with warm balm-tea, but did not perspire.

The next morning she had two purgative evacuations, and laboured under much anxiety and oppression at her breast: broad purple-coloured spots, which rose a little above the surface of her skin, soon after appeared all over her body; they were very thick on her breast and face, but not attended with any mitigation of the symptoms, except for an hour or two in the beginning.

She took one of the antimonial powders, which was repeated every three or four hours, without any sensible evacuation whatever: as she was not better in the evening, the eruption appearing livid, and her extremities being cold, a cordial julep was given her now and then; blisters were applied to the inside of her arms, and cataplasms to her feet; the emollient clyster was repeated, and she was allowed white-wine whey for common drink.

The two following days all the febrile symptoms increased, with the difficulty of breathing, although the blisters, which had been applied, produced their proper effect; and thus growing gradually worse and worse, she died at four in the morning, on the 5th of May, 1771, being the ninth day from that of her delivery.

This case was the only one where the omentum was neither suppurated or gangrenous; there was, indeed, some sign of slight inflammation, and a considerable quantity of fluid in the abdomen, which looked like the serum of blood; but it was not purulent, as in the former cases. Hence it is probable, that a gradual accumulation of fluid in the abdomen commences before death, as the lymphatics lose their absorbent power.

CASE XV.—Sibyl Watson, aged twenty-two, was delivered in the hospital, Oct. 2, 1776, of her first child, without any uncommon circumstance attending labour, which was easy and natural: the placenta came away without assistance, about ten minutes after delivery. She rested well in the night, and perspired gently.

This woman was delicate in constitution, and had, during the two last months of pregnancy, been troubled with a slight pain in her left side, attended with cough and difficulty of breathing; but these complaints had in a great measure been removed by bleeding some time before delivery.

3d. In the morning, she was perfectly free from pain and fever, but about six in the evening, without any apparent cause, was suddenly attacked with burning heat diffused all over her body, which was succeeded by coldness and shivering, great anxiety and oppression at the præcordia, and universal pain. For these complaints she took a few drops of the tinctura thebaica, in a little mint water.

At nine, she had the following symptoms, viz. violent pains in the left side of the thorax, which struck down to the left groin, sometimes to the right, and frequently darted from thence to the navel. She had great soreness all over the abdomen, a frequent nausea and retching to vomit, which brought up nothing but phlegm; her breathing was short and laborious, the pulse quick, weak, and unequal, sometimes fluttering, and at other times regular, with some small degree of hardness; her voice was weak and tremulous, her countenance pale, the skin hard and rough, without the least moisture on any part of her body, except the breast and neck: she complained, at intervals, of acute pain in the stomach, which continued for a short time, but frequently returned; she had also a fixed pain in the right shoulder.

Dr. Leake directed ten ounces of blood to be taken from the arm, which gave her immediate relief; the pulse became more regular, and the oppression about the præcordia and difficulty of breathing were almost totally removed. The fourth part of a grain of emetic tartar was given with the saline draught every three or four hours, and she drank plentifully of warm diluting liquors.

4th. No rest the preceding night; in the morning she had a bilious stool, her pulse was full and quick, attended with difficult respiration, and great oppression at the præcordia, with frequent sighings; her tongue was white, but moist, and she complained of universal pain and soreness all over the abdomen: the tartar emetic was continued, with large doses of camphorated julep every three hours: she diluted plentifully, but did not perspire.

5th. Had eight bilious stools, the pain and difficulty of breathing were considerably abated, her complexion more lively, the pulse regular, differing little from a healthy state; a gentle moisture was diffused over the whole body; she had a moderate secretion of milk, and the lochia were discharged in their natural quantity. Two ounces of a strong decoction of bark were now prescribed, and directed to be given every four hours; she rested well in the night, and perspired gently.

6th. Had five bilious stools without pain, and was much better in all respects. The decoction of bark was continued.

7th. Almost every complaint vanished: she was so much better, as to be able to walk about the ward without assistance, and in due time was discharged from the hospital perfectly recovered.

CASE XVI.—Sarah Davies was delivered at the Westminster

Lying-in hospital, December 4th, 1778. The lochial discharge and excretions in general were natural.

8th. The pulse full and frequent; respiration difficult. She was thirsty, had pain in her head, and, as she expressed it, at her heart also. By the matron's order, balm-tea and barley-water were given for common drink.

9th. She was visited by Dr. Leake, who prescribed the antimonial powders, and bottles of warm water to her feet.

11th. Better in every respect, with abatement of thirst, perspiration moderate, the bowels laxative, and pulse not so quick.*

12th. Worse, as supposed, from anxiety of mind; pulse low and frequent, the jaws strongly contracted, and breathing difficult, with pain in her bowels, and loose offensive stools. Dr. Leake directed a blister to the side, and boluses of camphor, musk, and opium, which were given when they could be got into her mouth.

13th. Pulse low and quick, and stools frequent; same medicines continued.

14th. Purging more violent, attended with slow fever; thirst violent, and skin dry. Visited by Dr. Leake, who directed a cold infusion of bark and antimonial powders.

15th and 16th. Delirious in the night, stools foetid, pulse quick and languid. Antimonials omitted, and the camphorated julep ordered to be given often, with a strong infusion of bark.

17th. Much the same. Medicines continued.

18th. Worse in the night; the abdomen much swelled; stools black, foetid, and involuntary. The medicines were continued as long as she could take them, and an opiate at night was given.

19th. In the morning the patient died.

The body was opened the next day. The abdominal integuments being removed, the omentum was found inflamed on one side. The intestines were much distended with wind, especially the colon. On the stomach was found a small gangrenous spot. The other viscera, as well as those of the thorax, had no diseased appearance. The contents of the pelvis were found, and the uterus contracted to the size of a small melon.

With respect to the number of patients delivered, and likewise those who died, in the Westminster New Lying-in hospital, the account, as appears by the hospital books, stands thus: From the 20th of April, 1767, to the 30th of November, 1769, out of 285 delivered, three had the child-bed fever, of whom Eliz. Walters and Eliz. Becket recovered; and Susannah Vernon, who had twins, died; also Ann Moody, of the small pox, the day after delivery. From the last date, to the 15th of May, 1770 (being the epidemic season), out of sixty-three delivered, nineteen had the

child-bed fever, besides others more slightly affected with it; of which number eleven died in the hospital, and two more out of the house, who were removed at the request of their friends.

From the 15th of May, 1770, to the 29th of September, 1772, out of three hundred and five delivered, two died, viz. Sarah Evans, and Hannah Jeffreys.

This fever was also epidemical in London in the year 1760, of which twenty-four died in the British Lying-in hospital, from the 12th of June to the latter end of December; there being no instance of any such mortality in so short a time till the year 1770, when it was again extremely fatal.

We shall conclude this chapter with observing, that the continental writers on this disease uniformly consider it as occasioned by *lacteal metastasis*. A French surgeon, Cit. Guinot, supposing an acidity and coagulation of the milk, strongly advises the administration of *carbonate of potash* (salt of tartar), and has given some cases in support of this theory. Dr. Michaelis, of Hanover, on the other hand, acquaints us that he has found considerable efficacy in the use of that class of stimulants termed antispasmodics; particularly valerian and opium, the former in large doses. These means, he asserts, effect the cure by restoring a certain degree of order in the lacteal secretions; (Vide Medical and Physical Journal, Vol. VIII).

CHAP. XV. OF THE SWELLING OF THE LOWER EXTREMITIES.

ACCORDING to Dr. Denman's account, given in his excellent Introduction to Midwifery, this disease has been long ago mentioned by the French writers, most commonly under the name of *L'enflure des jambes et des cuisses de la femme accouchée*; or that of *dépôt du lait*, from its supposed cause; but often with so little accuracy, as to make it difficult to distinguish what kind of swelling they meant to describe. By the Germans it is usually called the *œdema lacteum*.

"The puerperal swelling of the inferior extremities does not seem to depend upon the kind of labour the patient may have had, as it indiscriminately happens after those which were easy and those which were difficult; or on any evident peculiarity of the constitution, the corpulent and the thin, the feeble and the strong, being equally liable to it; or on rank in life, as the rich and poor are alike subject to it; or on any mode of treatment in the state of childbed. Nor does any appearance during pregnancy denote a disposition to it, the swelling of the inferior extremities at that time being a totally different complaint; but the whole disease seems to arise from some circumstance that occurs after the

delivery of the patient. It is also remarkable, which is a satisfactory reply to those who have attributed this swelling to the deposition of the milk, that it has happened to those who had an abundance, or those who had a scarcity of milk; or those who did, or those who did not give suck; and sometimes, though rarely, in abortions, when no milk was secreted.

“ Before the appearance of any swelling, or any sense of pain in the limb about to be affected, women become very irritable, and grievously depressed in their spirits, without any apparently sufficient reason, complaining only of transient pains in the region of the uterus, and from these only the approach of the disease has frequently been foretold. After a short time they are seized, often very suddenly, with an extremely acute pain in the calf of the leg, extending to the inside of the heel, and then, observing the course of the lymphatics, stretching up to the ham, along the internal part of the thigh to the groin, occasioning a slight soreness over the lower part of the abdomen. Then also the inguinal glands are affected; sometimes the external, which are perceptibly enlarged, indurated, and painful, and sometimes the internal, or both, and probably also, judging from the symptoms, those which lie at the bifurcation of the vessels at the loins. Except that I have not observed the limb to be discoloured, or the lymphatics inflamed, and marking their course by a redness of the skin (which we provincially call the anguish vein), the first effects of this disease very much resemble those which would attend the absorption of some poisonous matter from the lower part of the limb. The whole surface of the swelled limb becomes insufferably tender to the slightest touch or pressure, especially in those parts where the glands are seated; yet without any other apparent change, except that the skin is glossy and of a deadly paleness; and a certain degree of paleness, not unlike that of a chlorotic or dropical person, is spread over the countenance and whole body, every vein seeming to be scantily supplied with blood. When the pain has continued about twenty-four hours, the limb begins to swell, and the pain is usually abated in proportion to the increase of the swelling; but, from the moment of the attack, all power of acting with the limb is lost, every attempt to move it giving great torture, and a disposition to faint. There are, however, many varieties in the manner in which the disease commenceth, as well as in its degree and progress; but the glands and lymphatics of the limb are evidently the parts first and principally affected. In some cases the access of the disease is slower, and the symptoms less violent; hesitating, as it were, whether it should be formed or not. In these the pain is not only less severe, but diffused over the limb, instead of being fixed on particular parts, and the swelling scarce sufficient to draw attention.

“ This disease happens at no precise time after delivery, as it

has come on at any period, from the fifth or sixth day to the third or even fourth week, but most commonly, I think, between the fifth and twelfth day. Whenever it does appear, the whole constitution is speedily and greatly affected by it. The pulse is extremely quick, and generally feeble; the heat of the body is much increased, the tongue is white and clammy, and the countenance pale and dejected; the urine, which is voided in small quantities, is thick and of a muddy colour, unlike what I have observed in any other disease, the muddiness gradually lessening as the disease abates; the patient is costive; the feces being of a pale colour and clayey consistence; and the uterine discharges, whatever their quantity may be, have an offensive smell and unnatural appearance. It is, however, to be observed, that this smell and appearance do not always continue through the course of the disease, but, on enquiry, will be found to have existed at, or some days before, its commencement.

“ Either or both the legs may be affected, together or successively. When the latter is the case, the disease having remained for a certain time in one leg, and the symptoms being abated, the other has been suddenly and unexpectedly seized. Then the symptoms have recurred with equal violence, and gone through a similar course. But the patient having escaped the danger before apprehended, though disconcerted, bears the second attack, even if it be more severe, better than she did the first. Should the second leg become affected, it is not by a translation of the disease from one limb to the other; the leg first affected remaining in the same state, and observing the same progress, as before the affection of the second. When only one leg is affected, there are, in some cases, occasional exacerbations of the disease, after apparently considerable amendment; and these may render it necessary to change the order of treatment; or even to return to that which was proper at the commencement.

“ After eight or ten days’ continuance, according to its lenity or violence, the more urgent symptoms of this disease begin to abate, but in many cases very slowly; the debility and oppression sometimes remaining for several weeks, as the constitution is naturally more inert or vigorous. Though all the other symptoms be removed, the swelling may, and generally does, remain for many weeks, or even months; and, in some very bad cases, the limb has never been reduced to its primitive size, or recovered its wonted powers of agility and firmness during the patient’s life.

“ The constitution seems to be very much disturbed and enfeebled at the beginning of the disease, and unequal to the due performance of its common functions, yet after a certain time it seems to become local; for the patients recover their health, and

often menstruate regularly; but even this change has seldom afforded the expected relief to the affected limb."

Though this disease is not usually dangerous, Dr. Denman says it often creates much alarm to the patient and her friends, and always occasions much suffering. "I do not mean," says he, "nor should I be justified in saying, that it was never attended with danger; having been informed of several cases, and seen one, which proved fatal, where no other cause of the patient's death could be assigned or suspected."

"From this description of the disease," continues the doctor, "the inguinal and neighbouring glands seem to be the parts first affected, and the subsequent swelling of the limb to be evidently occasioned by the blocking up of all passage for the lymph through those glands. The pain and extreme soreness of the limb, which are always somewhat abated when the swelling comes on, appear to be incidental, and to be produced by the distension of the lymphatic vessels; so that the swelling seems to prove that those which were before over-distended are relieved, either by the bursting of some, allowing the effusion of lymph into the cellular membrane; or a series of vessels of small dimensions are enlarged, by which those lymphatics, which before suffered from extreme distension, together with the parts on which they made compression, are eased.

"But it remains to be proved how it comes to pass, that these glands are originally affected; and this I should endeavour to explain by presuming, that, as the lymphatic vessels of the uterus and vagina are very much increased in size during pregnancy, they are more capable of absorbing any fluid which may come into contact with their orifices; and if any fluid not consonant in its qualities with that which they were by nature intended to convey, were to be admitted and conducted to the gland to which any particular lymphatic may lead, a morbid affection of the gland might be produced, which would occasion all the succeeding mischief. Whether the internal or external inguinal glands, or those at the head of the triceps, or any other, were affected, will depend on the course of the lymphatic, which had taken up the offending matter."

Dr. Denman here expresses himself satisfied, that the *absorption of vitiated matter from the uterus* is the cause of the swelling of the inguinal glands. "Further," says he, "if this absorbed matter had not been interrupted by the gland, and thus prevented from spreading over the whole body, this disease would have been infinitely more dangerous; and this opinion is strengthened, not only by the common consequences of acknowledged poisons when absorbed, but by many similar complaints frequently met with in practice; as in the swelling of the inferior extremities of men,

when the prostate gland is affected; in one or both legs, when the uterus is diseased; in the arm, when the axillary glands are enlarged; and in many other cases. But the changes in the uterine discharges which precede this disease are not, it is apprehended, like the changes produced by the retention of coagula or of small portions of the placenta or membranes, but they are consequent to an unhealthy state or morbid action of the uterus.

"Having formed this opinion of the cause of this disease, and reasoning by analogy of its effects, in the method of treatment, without aiming to cure the disease in the first instance, I take the symptoms for my guide, and endeavour to relieve these by all the means in my power. As the sense of extreme weakness and excessive irritability are the most prominent and distressing, the patient is to be well supported by cordial medicines, and by a liberal use of wine; not restraining her to any precise quantity, but leaving her at liberty to judge what that shall be, by the degree of depression which she feels. Opiates are also to be given, to abate and soothe the general irritability of the habit, and, together with these, such medicines as promote the secretion by the skin and kidneys."

For these purposes Dr. Denman usually gives the following medicine:

(No. 33.) ℞ Aq. ammon. acetat. ʒss.

Syr. papaver. alb.

Spir. nuc. mos. ā ʒii.

Aq. menth. fativ.

Aq. puræ, ā ʒss.

M. f. haustus quarta vel sexta quaque hora sumendus.

"Should this fail," says he, "to moderate the sufferings of the patient, a few drops of tinct. opii may be occasionally added to the draughts, especially to that taken at bed-time, and the quantity of ammonia acetata may be increased, or pure ammonia may be given in some cases of great depression.

"Perhaps the best application to the swelled limb is a liniment composed of one drachm of camphor dissolved in an ounce of oil of olives; or some of the expressed oil of mace softened down to a proper consistence with a sufficient quantity of oil of almonds; and to either of these may be added from five to ten grains of powdered opium. The most painful parts, or the whole limb, may be gently anointed with a small quantity of these every night and morning, and afterwards covered with a loose flannel. By such means some relief is usually obtained, though not much permanent benefit; and they are preferable, I think, either to spirituous or to hot fomentations, which, without producing more advantage, are apt to bring on profuse sweating and great faintness."

Dr. Denman here expresses his doubts as to the propriety of

reforting, in this stage of the disease, to local bleedings with leeches, and blisters to the enlarged glands, as the most effectual means of speedily curing the disease by removing the glandular obstruction. If his opinion of the cause of the disease be just; the hasty dispersion of the swelling of the glands, if it could be effected, would ultimately prove a very great disadvantage, by allowing the absorbed virus to escape; and this pervading the whole body, a disease primarily local would become a general one of the most dangerous kind.

“With regard to the state of the bowels,” says the doctor, “though we are to be circumspect in preventing the inconveniences of constipation, it is never advisable to purge in this stage of the disease. Their regular course may be obtained by the occasional use of magnesia vitriolata, or any other medicine of the kind, which will answer the purpose, and is least likely to disturb the stomach. Clysters are not eligible, because the change of position which they require is often extremely difficult and painful.

“The great tumult raised on the first attack of the disease being appeased, the quantity of wine and opiates may be lessened, or they may be less frequently given; but in this we are to be guided by the degree of debility and irritation that remains. As a preventive also, when the disease is threatened, a generous diet and wine are to be allowed, if the appetite of the patient will allow her to take nourishment.

“When the constitution is, according to the old mode of expression, fortified, and the health somewhat restored, the swelling of the leg is to be considered rather as of a chronic than of an acute kind, and all reasonable endeavours may be used to disperse it. I have then given the decoctum cinchonæ or cascarillæ, with a saline draught, or the kali vitriolatum, or magnesia vitriolata, or a strong infusion of burnt sponge, two or three times a-day, and every night at bed-time half a grain or a grain of calomel, with or without an opiate. In some cases I have thought it more eligible to give from three to five grains of calomel twice a-week, with a purging draught on the following morning, and some of the draughts before mentioned on the intermediate days. In other cases the crystals of tartar have been liberally given in any convenient form; or the cicuta with a decoction of farfa, and various other things usually advised on similar occasions: and whenever there was much remaining weakness, some preparation of iron, as the ferrum vitriolatum or ammoniacale in suitable doses, has been of much service.

“Then also it is necessary to support the swelled limb by a slight flannel bandage drawn gradually tighter, and to use different applications, such as the volatile liniment, or one composed of three parts of linimentum saponis and one part of tinctura cantharidum, and sometimes small quantities of the unguentum hy-

drargyri. The frequent application of small blisters to different parts of the limb has been then strongly advised, and in many cases with evident advantage. Electricity has been tried, but of its real benefits I am not competent to judge. Certainly many patients have been much relieved by persevering in the use of warm sea-bathing; and they are to be encouraged, but with some caution, to use exercise, otherwise the desuetude will endanger their being crippled. It may lastly be observed, though some women have been afflicted with this swelling of one or other of the inferior extremities in several successive labours, in general they who have had it in one labour are not more liable to it in subsequent ones, and are sometimes relieved during their confinement from the consequences of a former attack."

CHAP. XVI. OF THE EVACUATIONS NECESSARY AT THE END OF THE MONTH AFTER DELIVERY.

THOSE who have had a sufficient discharge of the lochia, plenty of milk, and suckle their own children, commonly recover with ease, and, as the superfluous fluids of the body are drained off at the nipples, seldom require evacuations at the end of the month; but if there are any complaints from fulness, such as pains and stitches, after the twentieth day, some blood ought to be taken from the arm, and the belly gently opened by frequent clysters, or repeated doses of laxative medicines.

If the patient has tolerably recovered, the milk having been at first sucked or discharged from the nipples, and afterwards discussed, no evacuations are necessary before the third or fourth week; and sometimes not till after the first flowing of the menses, which commonly happens about the fifth week; if they do not appear within that time, gentle evacuations must be prescribed, to carry off the plethora, and bring down the catamenia; but in women of weakly constitutions these methods may be dispensed with.

EXPLANATION OF PLATES.

Plate VII. fig. 1. represents a well-formed pelvis.

AAAA, The *ossa ilia*, properly so called. *aa*, The iliac fossæ. *bbb b*, The angle which divides transversely and obliquely, from behind forward, the internal face of the os ilium into two parts, making part of the brim of the pelvis. *cccc*, The crista of the *ossa ilia*. *ee*, Their anterior superior spines. *ff*, The angle formed by the internal lip of the crista of the os ilium, to which is attached a ligament inserted at the other end in the transverse apophysis of the last lumbar vertebra. *gg*, The inferior angle of the os ilium, which makes part of the acetabulum.

BB, The os ischium. *b b*, Its tuberosities. *i i*, Its branches. *k k*, Its posterior part, making part of the acetabulum.

CC, The body of the os pubis. *l l*, Its angle. *m m*, Its posterior extremity, making part of the acetabulum. *n n*, Its descending branch, uniting with that of the ischium.

DDD, The os sacrum. 1, 2, 3, 4, The anterior holes. *o o o o*, Its base. *p p*, The sides. *q*, The point. E, The coccyx. F, The last lumbar vertebra. *r r*, The transverse apophysis of that vertebra. *s s*, The ligament proceeding from the transverse apophysis of the last vertebra to the angle of the internal lip of the crista of the os ilium, marked *f f*. *t t*, Another ligament which descends from the same apophysis to the superior edge of the sacro-iliac symphysis.

GG, The femur or thigh-bone. VV, Its head received in the acetabulum. *u u*, The foramina ovalia.

H, The symphysis of the ossa pubis. II, The sacro-iliac symphysis. K, The sacro-vertebral symphysis.

Fig. 2. represents the superior strait of a well-formed pelvis.

a a, The iliac fossæ. *b*, The sacro-vertebral angle, or projection of the sacrum. *c*, The last lumbar vertebra. *d d*, The lateral parts of the base of the sacrum. *e e*, The sacro-iliac symphyses. *f f*, The parts over the acetabula. *g*, The symphysis of the pubes.

The lines denote the different diameters of the superior strait.

AB, The little diameter. CD, The transverse or great diameter. EF, GH, The oblique diameter, extending from the left acetabulum to the right sacro-iliac junction.

Fig. 3. shows the inferior strait of a well-formed pelvis.

a a, The external faces of the ossa ilia. *b b*, Their anterior superior spines. *c c*, Their anterior inferior spines. *d d*, The acetabula. *e e*, The foramina ovalia, with the obturator ligaments. *f f*, The ischiatic tuberosities. *g g*, The ossa pubis. *h h*, The branches of the os pubis and ischium united. *i i*, The sacrum. *k*, The coccyx. *l l*, The sacro-ischiatic ligaments. *m*, The symphysis of the pubes. *n*, Its arch.

The diameters of the inferior strait are marked by the lines.

AA, The antero-posterior, or great diameter. BB, The transverse or little diameter. CC, DD, The oblique diameters.

Fig. 4. shews a deformed pelvis.

a a, The ossa ilia. *b b*, The ossa pubis. *c c*, The ossa ischia. *d d d*, The last lumbar vertebra. *e*, The projection of the sacrum. *f f*, The sacro-iliac symphyses. *g*, The symphysis of the pubes. *h h*, The foramina ovalia. *i i*, The branches of the ossa pubis and ischia, which form the anterior arch of the pelvis. *k k*, The acetabula.

AA, The antero-posterior diameter; the natural length being fourteen or fifteen lines. BB, The transverse diameter; the na-

tural length four inches and ten lines. CC, The distance from the projection of the sacrum to that point of the margin which answers to the left acetabulum, being thirteen lines. DD, The distance from the same point of the sacrum to that of the margin which answers to the right acetabulum, twenty lines.

Fig. 5. shews a vertical section of the pelvis.

A,A,A,A, The four last lumbar vertebræ. B,B,B, The os sacrum. CC, The coccyx. dd, The surface resulting from the section of the symphysis of the pubes. E, The left iliac fossa. F, The left side of the superior strait. G, The sacro-ischiatic ligament. H, The tuberosity of the ischium.

ii, The entrance of the vagina. K, one of the labia pudendi. L, The anus. M, The mons veneris. N, The left natis.

Plate VIII. fig. 10. gives a front view of the uterus *in situ*, suspended in the vagina; the anterior parts of the ossa ischium, with the ossa pubis, pudenda, perinæum, and anus, being removed, in order to show the internal parts.

A, the last vertebra of the loins. BB, the ossa ilium. CC, the acetabula. DD, the inferior and posterior parts of the ossa ischium. E, the part covering the extremity of the coccyx. F, the inferior part of the rectum. GG, the vagina cut open longitudinally, and stretched on each side of the collum uteri, to shew in what manner the uterus is suspended in the same.

HH, part of the vesica urinaria stretched on each side of the vagina, and inferior part of the fundus uteri.

I, the collum uteri. K, the fundus uteri. LL, the tubi Fallopiiani and fimbriæ. MM, the ovaria. NN, the ligamenta lata and rotunda. OO, the superior part of the rectum.

Fig. 11. gives a front view of the uterus in the beginning of the first month of pregnancy; the anterior part being removed that the embryo might appear through the amnios, the chorion being dissected off.

A, the fundus uteri. B, the collum uteri, with a view of the rugous canal that leads to the cavity of the fundus. C, the os uteri.

Fig. 12. In the same view and section of the parts as in fig. 10. shews the uterus as it appears in the second or third month of pregnancy.

F, the anus. G, the vagina, with its plicæ.

HH, the posterior and inferior part of the urinary bladder extended on each side; the anterior and superior part being removed.

II, the mouth and neck of the womb, as raised up when examining the same by the touch, with one of the fingers in the vagina.

KK, the uterus as stretched in the second or third month, containing the embryo, with the placenta adhering to the fundus.

Fig. 13. In the same view and section of the parts with the former figures, represents the uterus in the eighth or ninth month of pregnancy.

A, the uterus as stretched nearly to its full extent, with the waters, and containing the foetus entangled in the funis, the head presenting at the upper part of the pelvis.

BB, the superior part of the ossa ilium. CC, the acetabula. DD, the remaining posterior parts of the ossa ischium. E, the coccyx. F, the inferior part of the rectum. GGG, the vagina stretched on each side. H, the os uteri, the neck being stretched to its full extent, or entirely obliterated. II, part of the vesica urinaria. KK, the placenta, at the superior and posterior part of the uterus. LL, the membranes. M, the funis umbilicalis.

Fig. 14. gives a front view of twins *in utero* in the beginning of labour.

A, the uterus as stretched, with the membranes and waters. BB, the superior parts of the ossa ilium. CC, the acetabula. DD, the ossa ischium. E, the coccyx. F, the lower part of the rectum. GG, the vagina.

H, the os internum stretched open about a finger-breadth, with the membranes and waters, in time of labour pains.

II, the inferior part of the uterus, stretched with the waters which are below the head of the child that presents.

KK, the two placentas adhering to the posterior part of the uterus, the two foetuses lying before them, one with its head in a proper position at the inferior part of the uterus, and the other situated preternaturally with the head to the fundus; the bodies of each are here entangled in their proper funis, which frequently happens in the natural as well as preternatural positions.

LLL, the membranes belonging to each placenta:

Fig. 15. shews, in a lateral view and longitudinal division of the parts, the gravid uterus when labour is somewhat advanced

A, the lowest vertebra of the back; the distance from which to the last-mentioned vertebra is here shewn by dotted lines. CC, the usual thickness and figure of the uterus when extended by the waters at the latter end of pregnancy. D, the same contracted and grown thicker after the waters are evacuated. EE, the figure of the uterus when pendulous. FF, the figure of the uterus when stretched higher than usual, which generally occasions vomitings and difficulty of breathing. G, the os pubis of the left side. HH, the os internum. I, the vagina. K, the left nympha. L, the labium pudendi of the same side. M, the remaining portion of the bladder. N, the anus. OP, the left hip and thigh.

Fig. 16. shews the forehead of the foetus turned backwards to

the os sacrum, and the occiput below the pubes, by which means the narrow part of the head is to the narrow part of the pelvis, that is, between the inferior parts of the ossa ischium.

A, the uterus contracted closely to the foetus after the waters are evacuated. BCD, the vertebræ of the loins, os sacrum, and coccyx. E, the anus. F, the left hip. G, the perinæum. H, the os externum beginning to dilate. I, the os pubis of the left side. K, the remaining portion of the bladder. L, the posterior part of the os uteri.

Plate IX. fig. 17. is principally intended to shew in what manner the perinæum and external parts are stretched by the head of the foetus, in a first pregnancy, towards the end of the labour.

A, the abdomen. B, the labia pudendi. C, the clitoris and preputium. D, the hairy scalp of the foetus, swelled at the vertex, in a laborious case, and protruded to the os externum. E, F, the perinæum and anus pushed out by the head of the foetus in form of a large tumor. GG, the parts that cover the tuberosities of the ossa ischium. H, the part that covers the os coccygis.

Fig. 18. shews in what manner the head of the foetus is helped along with the forceps, as artificial hands, when it is necessary for the safety of either mother or child.

AABC, the vertebræ of the loins, os sacrum, and coccyx. D, the os pubis of the left side. E, the remaining part of the bladder. FF, the intestinum rectum. GGG, the uterus. H, the mons veneris. I, the clitoris, with the left nympha. X, the corpus cavernosum clitoridis. V, the meatus urinarius. K, the left labium pudendi. L, the anus. N, the perinæum. QP, the left hip and thigh. R, the skin and muscular parts of the loins.

Fig. 19. shews the head of the foetus, by strong labour-pains, squeezed into a longish form, with a tumor on the vertex, from a long compression of the head in the pelvis.

K, the tumor on the vertex. L, the forceps. M, the vesica urinaria much distended with a large quantity of urine from the long pressure of the head against the urethra. N, the under part of the uterus. OO, the os uteri.

Fig. 20. shews, in the lateral view, the face of the child presenting and forced down into the lower part of the pelvis, the chin being below the pubes, and the vertex in the concavity of the os sacrum: the water being likewise all discharged, the uterus appears closely joined to the body of the child.

Fig. 21. shews, in a lateral view, the head of the child in the same position as in the former figure.

AB, the vertebræ of the loins, os sacrum, and coccyx. C, the os pubis of the left side. D, the inferior part of the rectum. E, the perinæum. F, the left labium pudendi. GGG, the uterus.

Fig. 22. gives a lateral internal view of a distorted pelvis, divided longitudinally, with the head of a fœtus of the seventh month passing the same.

ABC, the os sacrum and coccyx. D, the os pubis of the left side. E, the tuberosity of the os ischium of the same side.

Fig. 23. gives a side view of a distorted pelvis, divided longitudinally, with the head of a full-grown fœtus squeezed into the brim, the parietal bones decussating each other, and compressed into a conical form.

ABC, the os sacrum and coccyx. D, the os pubis of the left side. E, the tuberosity of the os ischium. F, the processus acutus. G, the foramen magnum.

Fig. 24. shews, in a front view of the pelvis, the breech of the fœtus presenting, and dilating the os internum, the membranes being too soon broken.

Fig. 25. is the reverse of the former, the fore parts of the child being to the fore part of the uterus.

Fig. 26. represents, in a front view of the pelvis, the fœtus compressed, by the contraction of the uterus, into a round form, the fore parts of the former being towards the inferior part of the latter, and one foot and hand fallen down into the vagina. In this figure, the anterior part of the pelvis is removed, by a longitudinal section through the middle of the foramen magnum.

AA, the superior parts of the ossa ilium. BB, the uterus. C, the mouth of the womb stretched and appearing in OOOO, the vagina. D, the inferior and posterior part of the os externum. EEEE, the remaining part of the ossa pubis and ischium. FFFF, the membrana adiposa.

Fig. 26. represents, in the same view with fig. 27. the fœtus in the contrary position; the breech and fore parts being towards the fundus uteri, the left arm in the vagina, and the forearm without the os externum, the shoulder being likewise forced into the os uteri.

Plate VII. fig. 8. shews a deformed pelvis, of which the small diameter of the superior strait is only two inches seven lines. The figure is triple: F. I. shews it in its natural state; F. II. the ossa pubis separated 18 lines, and F. III. with a separation of two inches and a half, in order to shew the quantity of amplification which the section of the symphysis in such a pelvis can produce.

F. I. *a a*, the two last lumbar vertebræ; *b b b b*, the transverse apophyses of these vertebræ; *c c*, ligaments proceeding from the transverse apophyses of the last of these vertebræ to the middle and posterior part of the internal lip of the crista of the os ilium; *d d*, other ligaments descending from the same apophyses to the superior part of the sacro-iliac symphyses; *e*, the projection of the sacrum; *f f*, the lateral parts of the base of the sacrum; *g g*,

part of the ossa ilia: the rest of those bones being concealed by F. II. and III.

b b, The bodies of the ossa pubis; *ii*, their angles.

k k, The ossa ischia; *ll*, the branches of these bones, and of the pubes.

m, The arch of the ossa pubis at the fore part of the pelvis.

n n, The foramina ovalia concealed by the ossa pubis of F. II. and III.

A, The symphysis of the ossa pubis seen perspectively. *B B*, the sacro-iliac symphyses.

F. II. *oo*, Part of the ossa ilia.

PP, The bodies of the ossa pubis; *qq*, their angles; *rr*, their articular facettes seen perspectively; *ss*, very small portions of the branches of the ossa pubis.

ss, The ossa ischia appearing behind the foramina ovalia of *n^o* III; *tt*, articular facettes of the ossa ilia, corresponding to similar ones observed at the sides of the sacrum.

F. III. *uu*, The ossa ilia; *vv*, their cristæ; *xx*, the angle formed by the internal lip of the crista in the middle and posterior part of its length; *yy*, the anterior and superior spines of the ossa ilia; *zz*, the anterior spines of these bones; *CC*, articular facettes of the ossa ilia, making part of the sacro-iliac symphyses.

1 1, The ossa pubis; *2 2*, their angles; *3 3*, their articular facettes seen perspectively.

4 4, The ossa ischia; *5 5*, the united branches of the ossa ischia and pubis; *6 6*, the acetabula.

The lines indicate the natural size of the pelvis in the different directions in which they are traced; and their dotted extremities, the amplification which the superior strait acquires in those same directions at a separation of eighteen lines, and of thirty lines between the ossa pubis. Line I. Antero-posterior diameter of the superior strait, or the distance from the pubes to the projection of the sacrum; two inches seven lines. Line II. Transverse diameter of the superior strait, in its most extensive part; four inches seven lines. Line III. Oblique diameter of the superior strait, which extends from that point of the strait which corresponds with the anterior edge of the left acetabulum, to the right sacro iliac junction; three inches eleven lines. Line IV. The other oblique diameter, which extends from that point of the strait which answers to the anterior edge of the right acetabulum, to the left sacro-iliac symphysis; four inches.

By giving the smallest attention to the relation of these dimensions to those which the head of a foetus of the usual size presents in their direction in time of labour, we shall see that they are very favourable; except the first, which is, strictly speaking, eleven lines too short, being only thirty-one lines in extent: whereas the transverse diameter of the head is commonly forty-

two. It is only in this latter direction, and to the extent of eleven lines, that it would be necessary to augment the capacity of such a pelvis, to favour delivery. As the greater part of those who have performed the Sigaultian operation have only obtained a separation of eighteen lines or thereabouts between the ossa pubis, it is fixed at that degree in the second figure.

By such a separation in a pelvis perfectly similar to that here represented, the angle of each os pubis recedes from the centre of the projection of the sacrum three lines, or very near, beyond their natural distance from it. (See the lines V, and VI.) The antero-posterior diameter receives but the same increase, if we consider it as lengthened to the middle of the dotted line IX, IX, which marks the depth at which it may be presumed the lateral convexity of the head engages. Both the oblique diameters augment five lines before, and about two lines and a half backward; and the transverse diameter seven lines, or very nearly.

It is evident, that a separation of eighteen lines on such a pelvis cannot remove the disproportion which exists between the small diameter of the superior strait and the small diameter of the child's head; since the former augments only three lines, considered in the most favourable point of view. The amplification which the other diameters receive from a similar separation, is absolutely useless; those diameters being naturally large enough.

Supposing that the ossa pubis recede in an equal degree, in separating two inches and a half, the angle of each of them will remove from the centre of the projection of the sacrum only six lines further than the distance they were from it before; which also gives an increase of but six lines between these two points. (See the lines VII, and VIII.) The small diameter of the entrance of the pelvis does not gain much more, considering it to the middle of the dotted line XX, which marks the bounds beyond which the convexity of the head could not engage between the ossa pubis, even if the pelvis were divested of all its soft parts: which does not happen in the section of the pubes, for the neck of the bladder, the canal of the urethra, their cellular tissue, the anterior semicircle of the orifice of the uterus, and the anterior part of the vagina, present at the opening and before the child's head. At this degree of separation, the transverse diameter augments about thirteen lines, and each oblique diameter nearly fourteen lines: a superfluous increase, since those diameters, in the pelvis represented, have all the length requisite for delivery.

The posterior extremities of the oblique diameters, which are dotted and marked with the figures XI and XII, shew the separation which is to be feared in the sacro-iliac symphyses, by separating the ossa pubis two inches and a half. It was at that degree that Mr. Baudeloque observed they were open in most of

his experiments; since he could easily put the end of his finger, and even of his thumb, into them.

Admitting that the convexity of one of the sides of the child's head may let itself in between the ossa pubis separated to two inches and a half, as far as the dotted line XX, traced on that very convexity, it is evident that that separation cannot procure the relation of dimensions necessary for an easy delivery, when the pelvis has originally but two inches six or seven lines in the small diameter: whence it follows that the section of the pubes, supposing that we could obtain a separation of two inches and a half in the living woman without exposing her to disagreeable accidents, would not answer in the case of a pelvis similar to that represented in this plate.

Fig. 9. shews a pelvis with only fourteen or fifteen lines in the small-diameter of its entrance, and four inches ten lines in the largest. The figure is triple like the former. F. I. represents it in its natural situation; F. II. with the ossa pubis separated two inches and a half; and F. III. with a separation of three inches. M. le Roy says, that he constantly obtained those two degrees of separation without any inconvenience.

F. I. *aaa*, The three last lumbar vertebræ. *b*, The projection formed by the last of those vertebræ, with the base of the sacrum. *cc*, The sides of the base of the sacrum. *ddd*, The transverse apophyses of the right side of the above-mentioned vertebræ. *ee*, A ligament extending from the first of those apophyses to the angle made by the internal lip of the crista of the os ilium towards its middle and posterior part. *ff*, Another ligament which depends from that apophysis to the superior part of the sacro-iliac symphysis. *gggg*, Part of the os ilium. *hh*, The bodies of the ossa pubis: *ii*, their angles. *kk*, The ossa ischia. *ll*, The branches of the ossa ischia and pubis. *m*, The arch of the ossa pubis. *nn*, The foramina ovalia. *A*, the symphysis of the ossa pubis. *BB*, The sacro-iliac symphyses. F. II. *oooo*, Part of the ossa ilia. *ff*, The articular facettes of the ossa ilia, making part of the sacro-iliac symphyses. *pp*, The bodies of the ossa pubis. *qq*, The angles of the ossa pubis separated two inches and a half. *rr*, The cartilaginous facettes of the ossa pubis seen perspectivevely. *ss*, The branches of the ossa ischia and pubes.

F. III. *tt*, The ossa ilia: *uu*, their cristæ: *vv*, their anterior superior spines: *xx*, their anterior inferior spines.

yy, The anterior inferior spines of the ossa ilia of F. II. *z.z.*, Their anterior articular facettes, making part of the sacro-iliac symphyses.

⊗ ⊗, The bodies of the ossa pubis: 1 1, their angles. 2 2, The articular facette of each os pubis seen perspectivevely. 3 3, The united branches of the ossa pubis and ischia seen perspectivevely.

4 4, The ossa ischia. 5 5, The foramina ovalia, behind which is seen part of the ossa ischia of F. II. 6 6, The acetabula.

The lines indicate the length of the different diameters of the superior strait, in the direction in which they are traced; and their dotted extremities, the amplification to be expected from a separation of two inches and a half, and of three inches.

Line I, The antero-posterior, or small diameter of the superior strait; one inch two or three lines. Line II, The transverse diameter of the same strait: this line, which is four inches ten lines in extent, passes under the projection of the sacrum. Line III, The distance from the middle and left lateral part of the projection of the sacrum, to that point of the margin of the pelvis which answers to the anterior edge of the acetabulum on the same side; one inch. Line IV, The distance from the middle and right lateral part of the projection of the sacrum, to that point of the margin which answers to the anterior edge of the acetabulum on the same side; one inch eight lines.

The relation of these dimensions to those of a child's head of the usual size is such, that the small diameter of the latter, supposed always to be three inches and a half, surpasses the small diameter of the entrance of such a pelvis by twenty-seven or twenty-eight lines. This pelvis would be large enough in the direction of the line II, II.

By separating the ossa pubis two inches and a half, we augment the breadth of the entrance of the pelvis about three quarters of an inch in the direction of the line II, II: as much, or nearly, in the direction of the line III, and only six lines in that of the line IV. The angle of each os pubis marked by the letter *g*, recedes from the centre of the projection of the sacrum, nine or ten lines beyond what it was distant from it before the separation of the bones: the entrance of the pelvis increases as much in the direction of the line V, and only half an inch in the course of the line VI. The small diameter, or the line I, continued to the middle of the dotted line IX, IX, which shews the depth to which the child's head may be let in between the ossa pubis separated two inches and a half, if the pelvis were divested of all its soft parts: this diameter will then be augmented only seven lines; whence we see that it would still be an inch and a half, at least, shorter than the small diameter of the head of a child of the usual size.

The section of the pubes would, therefore, be fruitless on such a pelvis, if it could only procure a separation of two inches and a half; which seems a very exorbitant one. With more reason would it be unsuccessful, if we could separate the ossa pubis only eighteen lines, as has most frequently happened; since it could not procure the proportion necessary for delivery,

even if we could turn that separation entirely to the advantage of the small diameter of the superior strait.

Let us see if a separation of three inches could procure that proportion.

By separating the ossa pubis three inches, we augment the breadth of the pelvis twelve or thirteen lines in the direction of the line II, II; ten lines at most in the course of the line III; only seven in the line IV; about an inch in the line V; and only seven lines in the direction of the line VI: the angle of each os pubis recedes an inch farther from the projection of the sacrum, than the distance it was at before the separation of the bones; which augments the opening of the pelvis to the amount of an inch, or thereabouts, in the direction of the line VII, and only half an inch in the line VIII. The antero-posterior diameter of the entrance of this pelvis, considered as far as the middle of the dotted line X, X, which shews the greatest depth to which the child's head could be let in between the ossa pubis, separated three inches, if the pelvis were divested of the soft parts, increases but ten lines or thereabouts; which cannot remove the disproportion that existed before the section of the pubes, between that diameter and the thickness of the child's head which must pass in that direction. From whence we ought to conclude, that this separation also would have no success, if the pelvis were as much deformed as that designed.

The dotted lines XI and XII, shew the separation to be feared in the sacro-iliac symphyses, by separating the ossa pubis three inches.

The two other dotted lines, marked by the characters IX, IX, and X, X, shew how far the child's head may be let in between the ossa pubis separated to the two degrees stated: they were traced on the convexity of a real head applied behind the ossa pubis in a pelvis stripped of its soft parts.

Plate X. fig. 29. shews a well-formed pelvis, the anterior part of which is taken away, to shew one of the transverse positions of the face of the child, and explain more fully the mechanism of that kind of labour.

a a, Part of the iliac fossa. *b b*, Part of the crista of the ossa ilia. *c c*, Their anterior superior spines.

d, d, The ischiatic tuberosities. *e, e*, The acetabula. *f, f*, The thickness of the ossa ischia sawn through vertically before their tuberosities.

g, g, The bodies of the ossa pubis sawn through before the acetabula.

h, h, h, A circle; representing a vertical section of the uterus, the anterior part of which is taken away in order to shew the child. *i*, The child's chin. *k*, The posterior extremity of the

head. *l, l, l*, The lever applied along the crown of the head, the extremity of it extending beyond the posterior fontanella.

m, The left lateral, and inferior part of the pelvis. *n*, A portion of the right lateral part of the uterine cavity. *o*, The left hand. *p, q*, The fore and middle fingers, placed at the sides of the nose, and pressing against the upper jaw. *R*, The right hand grasping the extremity of the lever.

Plate X. fig. 30. shews the same vertical section of a pelvis as the last; with the child's body entirely disengaged from it. The head grasped by the forceps is retained at the superior strait, with the occiput over the pubes, and the lower part of the forehead against the projection of the sacrum.

a, a, The last lumbar vertebræ. *d, d*, The canal of these vertebræ, and of the sacrum. *g, g, g, g*, Spiny tubercles of the vertebræ above mentioned. *b, b, b, b*, The false vertebræ of the sacrum. *c, c, c*, The coccyx. *e, e*, The flattened portion of the anterior face of the sacrum.

f, The left sacro-ischiatic ligament. *h*, The cartilaginous and ligamentous facette of the left os pubis, making part of the symphysis.

i, The mons veneris. *k, k, k, k*, A circle representing the section of the uterus, the right side of which is taken away to shew the head and the instrument. *l, l*, A portion of the placenta attached to the superior and anterior part of the uterus.

m, m, m, The female branch of the forceps applied on the left side of the head, which answers to the right side of the pelvis. *n, n*, The male branch of the forceps, applied at the left side of the pelvis, and the right side of the head. *o*, Part of the left small sacro-ischiatic ligament. *P*, Part of the left os ilium, the rest being concealed by the head.

q, The point to which we ought to bring the lower extremity of the forceps, in bringing the head down into the cavity of the pelvis.

R, The point of elevation at which the extremity of the forceps must be held, when the head occupies the bottom of the pelvis, after having replaced the face underneath.

Fig. 31, shews also the vertical section of a pelvis; but is supposed to have only three inches six lines in the small diameter of its entrance. The base of the cranium is engaged in it in a transverse direction, the occiput being turned towards the left side, and the face to the right side; so that the greatest thickness of the head is still above the strait.

a, a, The two last lumbar vertebræ. *b, b, b, b, b*, The five false vertebræ of the sacrum. *c, c, c*, The three pieces of the coccyx. *d, d*, The canal of the aforesaid vertebræ. *e, e, e, e*, Their spinous apophyses. *f, f*, Part of the anterior face of the sacrum.

g, The left sacro-ischiatic ligament. *h*, The cartilaginous and

ligamentous facette of the left os pubis, making part of the symphysis. *i*, The mons veneris.

k, k, k, k, A circle indicating the section of the uterus in the same direction as that of the pelvis. *l, l*, A portion of the placenta attached to the fundus of the uterus.

m, m, m, The female branch of the forceps, applied on the left side of the child's head, and under the symphysis of the pubes.

n, n, n, The female branch of the forceps applied on the right side of the head, and before the sacrum. *o*, A dotted line, in the direction of which the instrument must be pulled to bring down the head into the pelvis.

p, The point of elevation at which the forceps must be held when the head is brought down to the bottom of the pelvis, after having turned the face into the curve of the os sacrum.

Plate VII. fig. 6. shews M. Baudelocque's calipers for measuring the antero-posterior diameter of the superior strait.

a, a, The branches of the calipers. *B*, The hinge which unites the two branches. *c, c*, Lenticular buttons which terminate the branches. *d*, A graduated scale nine inches long, intended to demonstrate the thickness of the body comprised between the two branches. This scale is contained in a deep groove cut lengthwise in the branch of the calipers, from the letter *e* to the hinge *B*; and passes through a mortise made in the other branch under the letter *f*. *e*, The place where the scale is united by a kind of hinge. *f*, A little screw with a flat head, designed to fix the scale, while we calculate the thickness of the body comprised between the two branches.

Fig. 7. shews the pelvimeter of M. Coutonli developed in the pelvis.

A, A, The first branch; whose square, *B*, is applied to the projection of the os sacrum. *C, c*, A kind of hooks intended to keep the first branch in its place, while we introduce and develop the second. This has a dove-tailed groove, in which the body of the second branch is lodged and moved. *d, d*, the second branch of the instrument, whose square *e* is placed against the symphysis of the pubes. *F*, a scale four inches long, graduated in the branch *d, d*; and intended to shew the degree of opening from the pubes to the sacrum.

Fig. 21. represents, in a lateral view of the pelvis, the method of extracting, by means of a curved crotchet, the head of the foetus, when left in the uterus, after the body is delivered and separated from it; either by its being too large, or the pelvis too narrow.

ABC, the os sacrum and coccyx.

D, the os pubis of the left side.

EE, the uterus.

F, the locking part of the crotchet.

g, h, i, The point of the crotchet on the inside of the cranium.

In plate XI. fig. 32. represents the forceps and blunt-hook.

A, the straight forceps, in the exact proportion as to the width between the blades, and length from the points to the locking part; the first being two and the second six inches, which, with three inches and a half (the length of the handles), make in all eleven inches and a half.

B represents the posterior part of a single blade, in order to shew the width and length of the open part of the same, and the form and dimensions of the whole.

C, the blunt-hook, which is used for three purposes: 1. To assist the extraction of the head, after the cranium is opened with the scissars, by introducing the small end along the ear on the outside of the head to above the under-jaw, where the point is to be fixed; the other extremity of the hook being held with one hand, whilst two fingers of the other are to be introduced into the foresaid opening, by which hold the head is to be gradually extracted. 2. The small end is useful in abortion, in any of the first four or five months, to hook down the secundines, when lying loose in the uterus, when they cannot be extracted by the fingers or labour pains, and when the patient is much weakened by floodings. 3. The large hook at the other end is useful to assist the extraction of the body when the breech presents; but should be used with great caution, to avoid the dislocation or fracture of the thigh.

Fig. 33. *A*, represents the whalebone fillet, which may be sometimes useful in laborious cases, when the operator is not provided with the forceps, in sudden and unexpected exigencies.

BB, two views of a pessary for the prolapsus uteri. After the uterus is reduced, the large end of the pessary is to be introduced into the vagina, and the os uteri retained in the concave part, where there are three holes to prevent the stagnation of any moisture. The small end without the os externum has two tapes drawn through the two holes, which are tied to four other tapes, that hang down from a belt that surrounds the woman's body, and by this means keep up the pessary. This pessary may be taken out by the patient when she goes to bed, and introduced again in the morning; but as this sometimes rubs the os externum, so as to make its use uneasy, the round kind, marked *C*, are of more general use. They are made of wood, ivory, or cork (the last covered with cloth and dipped in wax): the pessary is to be lubricated with pomatum, the edge forced through the passage into the vagina, and a finger introduced in the hole in the middle lays it across within the os externum. They ought to be larger or smaller, according to the wideness or narrowness of the passage, to prevent their being forced out by any extraordinary straining.

DD gives two views of a female catheter, to shew its degree of curvature and different parts.

Fig. 34, *a*, represents a pair of curved crotchets locked together in the same manner as the forceps. The dotted lines along the inside of one of the blades represent a sheath contrived to guard the point till it is introduced high enough: the ligature at the handles, marked with two dotted lines, is then to be untied, the sheath withdrawn, and the point being uncovered, is fixed as in fig. 21. plate IX.

b, Gives a view of the back part of one of the crotchets, which is twelve inches long.

c, A front view of the point, to shew its proportional length and breadth.

d, The scissars for perforating the cranium in very narrow and distorted pelvises. They ought to be made very strong, and at least nine inches in length, with stops or rests in the middle of the blades, by which a large dilatation is more easily made.

Fig. 35. gives an anterior view of the improved lever or *Vectis* by Roonhuysen, an instrument now come into great reputation.

Fig. 36. shews the same in profile. Fig. 37. the lever recommended by Baudelocque. Fig. 38. one of the blades of a lever recommended by M. Herbinaux, fixed in the handle. Fig. 39. an anterior view of the same blade with the strap. Fig. 40. the spout of the syringe, when the instrument is used for injecting oil, or any other liquid, into the uterus. The following is a general description of Roonhuysen's lever, with the method of using it, as given by M. Preville, and added to his edition of Smellie's Midwifery. "The lever is an oblong piece of iron, eleven inches long, one broad, and about an eighth of an inch in thickness; it is straight in its middle for four inches, and becomes gradually curved at each extremity; the curves are of different lengths and depths; the edges are rounded; and the extremities for the space of an inch, and also the middle of the instrument, are directed to be covered with plaster, and then the whole of it to be sheathed with thin dogskin; taking care to avoid inequalities or folds, which might injure the woman or child. In using it, the accoucheur must introduce the fore finger of his left hand into the vagina near the anus; to serve as a guide for the instrument, which must now be gently insinuated between his finger and the head of the child, taking care that no part of the uterus be included between the lever and the head. The instrument must then be moved to the right and to the left, to find where there is the greatest space, and in some degree to loosen and disengage the head; and then gradually carried round, until it comes under the pubes, lifting the end of it from time to time, to obtain a freer passage. The handle of it must now be raised, and the instrument gently shifted about, until the occiput is exactly lodged in its curve. The more

more completely and exactly the curve touches and embraces the head, the more speedily and easily the delivery will be effected. The instrument being thus firmly and equally applied to the head, the accoucheur must slowly and uniformly raise the handle with his right hand, while with his left he presses the middle of it downward; by this means the coccyx is forced backward, and the lower part of the pelvis is enlarged. By continuing to raise the handle of the lever and to press down its middle or centre, the head of the child is made to descend into the dilated cavity of the vagina: and this is commonly effected in a few minutes; when the left hand must be applied firmly against the anus and perinæum, forcing those parts upwards and forwards towards the orifice of the vagina, to prevent laceration; for which purpose also the whole operation must be performed slowly and cautiously, imitating as much as possible a natural labour."

"We found," add the authors of the paper, "a cord fixed round one of the ends of the instrument, about the middle of the curve. This cord, we imagined, served no other purpose than to point out the end of the instrument commonly made use of, or to measure the length of the part introduced."—See Dr. Denman's account of the *VICTIS*, page 271.

Fig. 41. Mr. Bernard's new instrument for tapping in the ovarian dropsy, described in p. 509.

PRACTICE OF MIDWIFERY.

PART IV.

DISEASES OF CHILDREN.

MANY of the diseases incident to the human species in the early periods of life, have been treated on in our preceding volumes. Some, however, remain to be considered, but more especially those peculiar to the infant state. By way of introduction, we shall therefore make a few observations on the nursing and management of children soon after their birth.

CHAP. I. TREATMENT OF INFANTS IN THE MONTH.

FROM the annual registers of the dead it appears, that about one half of the children born in Great Britain die under twelve years of age; and this very great mortality Dr. Buchan attributes, in a great measure, to wrong management. The particulars of this wrong management enumerated by him are,

1. Mothers not suckling their own children. This, he owns, it is sometimes impossible for them to do; but where it can be done, he affirms that it ought never to be omitted. This, he says, would prevent the unnatural custom of mothers leaving their own children to suckle those of others; on which he passes a most severe censure, and indeed scarcely any censure can be severe enough upon such inhumanity. Dr. Buchan informs us, "He is sure he speaks within bounds, when he says not one in a hundred of these children live who are thus abandoned by their mothers." For this reason, he adds, that no mother should be allowed to suckle another's child till her own be fit to be weaned. A regulation of this kind would save many lives among the poorer sort, and would do no harm to the rich; as most women who make good nurses are able to suckle two children in succession upon the same milk.

2. Another source of the diseases of children is the unhealthi-

ness of parents; and our author insists that no person who labours under any incurable malady ought to marry.

3. The manner of clothing children tends to produce diseases. All that is necessary here, he says, is to wrap the child in a soft loose covering; and the softness of every part of the infant's body sufficiently shews the injury which must necessarily ensue by pursuing a contrary method.

4. A new-born infant, instead of being treated with syrups, oils, &c. ought to be allowed to suck the mother's milk almost as soon as it comes into the world. He condemns the practice of giving wines and spirituous liquors along with the food soon after birth; and says, that if the mother or nurse has a sufficient quantity of milk, the child will need little or no other food before the third or fourth month. But to this it may reasonably be objected, not only that the nursing would be very severe on the mother; but if the child be thus left long without food, it will not easily relish it for some time, and its stomach is apt to be easily hurt by a slight change of diet after it has been long accustomed to one thing. Neither can it be shewn, that the strongest and most healthy infants are those which get no other food but the mother's milk during the first months of their life. In fact, children are evidently of a weak and lax habit of body, so that many of their diseases must arise from that cause: all directions which indiscriminately advise an antiphlogistic regimen for infants as soon as they come into the world, must of necessity be wrong. Many instances in fact might be brought to shew, that by the preposterous method of starving infants, and at the same time treating them with vomits and purges, they are often hurried out of the world. Animal food is excessively agreeable to children, and they ought to be indulged with it in moderation; and this will prove a much better remedy for those acidities with which children are often troubled, than magnesia, prepared chalk, or other absorbents, which have the most pernicious effects on the stomachs of these tender creatures, and pall the appetite to a surprising degree. The natural appetites of children are indeed the best rule by which we can judge of what is proper or improper for them. They must no doubt be regulated as to the quantity; but we may be assured that animal food, either roasted or boiled, will not hurt if taken in moderation. When children are sick, they refuse every thing but the breast; and if their disorder be very severe, they will refuse it also; and in this case they ought not to be pressed to take food of any kind; but when their sickness goes off, their appetite also returns, and they will require the usual quantity of food.

As most young children, if in health, naturally sleep much, and pretty soundly, we may always be apt to suspect that something is amiss when they begin to be subject to watching and

frights ; symptoms which seldom or never occur but either in consequence of some present disorder not yet taken notice of, or as the certain forerunners of an approaching indisposition. We should immediately, therefore, endeavour to find out their cause, that we may use every possible means to remove or prevent it ; otherwise the want of natural rest, which is so very prejudicial to persons of all ages, will soon reduce the infant to a low and emaciated state, which may be followed by an hectic fever, diarrhoea, and all the other consequences of weakness and debility. These symptoms being always the effects of irritation and pain, may proceed, in very young infants, from crudities or other affections of the *primæ viæ* producing flatulencies or gripes ; about the sixth or seventh month, they may be owing to that uneasiness which commonly accompanies the breeding of teeth ; and after a child is weaned, and begins to use a different kind of food, worms become frequently an additional cause of watchings and disturbed sleep. Hence, to give the necessary relief on these occasions, the original complaint must first be ascertained from the child's age, and other concomitant circumstances, and afterwards treated according to the nature of the case. Women and nurses are too apt to have recourse to opiates in the watchings of children, especially when their own rest happens to be much disturbed by their continual noise and clamour. But this practice is very prejudicial, and never ought to have place when the belly is in the least obstructed.

Dr. Struve, who has lately written on the physical education of children, says, " Infants cannot sleep too long ; and it is a favourable symptom, when they enjoy a calm and long-continued rest, which they should by no means be deprived of, as this is the greatest support granted to them by nature. A child lives, comparatively, much faster than an adult ; its blood flows more rapidly ; every stimulus operates more powerfully ; and not only its constituent parts, but its vital resources also, are more speedily consumed. Sleep promotes a more calm and uniform circulation of the blood ; it facilitates the assimilation of the nutriment received, and contributes towards a more copious and regular deposition of alimentary matter, while the horizontal posture is the most favourable to the growth and bodily development of the child.

" Sleep ought to be in proportion to the age of the infant. After an uninterrupted rest of nine months in the state of a foetus, this salutary refreshment should continue to fill up the greater part of a child's existence ; and Prof. Hufeland affirms, that a continued watchfulness of twenty-four hours would prove destructive. After the age of six months, the periods of sleep, as well as all other animal functions, may in some degree be regulated ; yet, even then, a child should be suffered to sleep the whole night, and several hours both in the morning and after-

noon. Mothers and nurses should endeavour to accustom infants, from the time of their birth, to sleep in the night preferably to the day; and for this purpose they ought to remove all external impressions which may disturb their rest, such as noise, light, &c. but especially not to obey every call for taking them up, and giving food at improper times. After the second year of their age, they will not instinctively require to sleep in the forenoon, though after dinner it may be continued to the third and fourth year of life, if the child shews a particular inclination to repose; because, till that age, the full half of its time may safely be allotted to sleep. From that period, however, it ought to be shortened for the space of one hour with every succeeding year; so that a child of seven years old may sleep about eight, and not exceeding nine, hours: this proportion may be continued to the age of adolescence, and even manhood.

"To awaken children from their sleep with a noise, or in an impetuous manner, is extremely injudicious and hurtful: nor is it proper to carry them from a dark room immediately into a glaring light, or against a dazzling wall; for the sudden impression of light debilitates the organs of vision, and lays the foundation of weak eyes from early infancy.

"A bed-room, or nursery, ought to be spacious and lofty, dry, airy, and not inhabited through the day. No servants, if possible, should be suffered to sleep in the same room; and no linen nor washed clothes should ever be hung there to dry, as they contaminate the air in which so considerable a portion of infantine life must be spent. The consequences attending a vitiated atmosphere in such rooms are various, and often fatal. Feather-beds should be banished from nurseries, as they are an unnatural and debilitating contrivance. The windows should never be opened at night, but left open the whole day, in fine clear weather. Lastly, the bedstead must not be placed too low on the floor; nor is it proper to let children sleep on a couch which is made without any elevation from the ground."

CHAP. II. OF FITS OR CONVULSIONS.

ACCORDING to Dr. Armstrong, *inward fits*, as they are called, are in general the first complaint that appears in children; and, as far as he has observed, most, if not all, infants, during the first month, are more or less liable to them. The symptoms are these: the child appears as if it was asleep, only the eyelids are not quite closed; and if you observe them narrowly, you will see the eyes frequently twinkle, with the white of them turned up. There is a kind of tremulous motion in the muscles of the face and lips, which produces something like a simper or a smile, and

sometimes almost the appearance of a laugh. As the disorder increases, the infant's breath seems now and then to stop for a little; the nose becomes pinched; there is a pale circle about the eyes and mouth, which sometimes changes to livid, and comes and goes by turns; the child starts, especially if you go to stir it ever so gently, or if you make any noise near it. Thus disturbed, it sighs, or breaks wind, which gives relief for a little, but presently it relapses into the dozing. Sometimes it struggles hard before it can break wind, and seems as if falling into convulsions; but a violent burst of wind from the stomach, or vomiting, or a loud fit of crying, sets all to rights again. As the child increases in strength, these fits are the most apt to go off spontaneously and by degrees; but in case they do not, and if there is nothing done to remove them, they either degenerate into an almost constant drowsiness (which is succeeded by a fever and the thrush), or else they terminate in vomitings, sour, curdled, or green stools, the watery gripes, and convulsions. The thrush, indeed, very often terminates in these last symptoms. Wherefore, as these complaints naturally run into one another, or succeed one another, they may be considered, in a manner, as only different stages of the same disease, and which derive their origin from the same cause. Thus, the inward fits may be looked upon as the first stage of the disorder; the fever and thrush (when it happens), as the second; the vomitings, sour, curdled, green, or watery stools, as the third; and convulsions, as the last.

As to the cause of these complaints, he observes, that in infants the glandular secretions, which are all more or less glutinous, are much more copious than in adults. During the time of sucking, the glands of the mouth and fauces being squeezed by the contraction of the muscles, spue out their contents plentifully; which afterwards mixing with the mucus of the gullet and stomach, render the milk of a slimy consistence, by which means it is not so readily absorbed into the lacteals; and as in most infants there is too great an acidity in the stomach, the milk is thereby curdled, which adds to the load; hence sickness and spasms, which, being communicated by sympathy to the nerves of the gullet and fauces, produce the convulsive motions above described, which go commonly by the name of inward fits. The air, likewise, which is drawn in during suction, mixing with the milk, &c. in the stomach, perhaps contributes towards increasing the spasms above mentioned. Dr. Armstrong is the more induced to attribute these fits to the causes now assigned, that they always appear immediately after sucking or feeding; especially if the child has been long at the breast, or fed heartily, and has been laid down to sleep without having first broken wind, which ought never to be done. Another reason is, that nothing relieves them so soon as belching or vomiting; and the milk or food they throw up is generally

either curdled, or mixed with a large quantity of heavy phlegm. In case they are not relieved by belching or vomiting, the fits sometimes continue a good while, and gradually abate, according as the contents of the stomach are pushed into the intestines; and as soon as the former is pretty well emptied, the child is waked by hunger, cries, and wants the breast; he sucks, and the same process is repeated. Thus, some children for the first weeks are kept almost always in a doze, or seemingly so; especially if the nurses, either through laziness or want of skill, do not take care to rouse them when they perceive it is not a right sleep, and keep them awake at proper intervals. This dozing is reckoned a bad sign amongst experienced nurses, who look upon it as a forerunner of the thrush, as indeed it often is; and therefore, when it happens, we ought to be upon our guard to use the necessary precautions for preventing that disorder.

For these disorders, the only remedy recommended by Dr. Armstrong is antimonial wine, given in a few drops, according to the age of the infant. By this means the superabundant mucus will no doubt be evacuated; but at the same time we must remember, that this evacuation can only palliate, and not cure, the disease. This can only be effected by tonics: and a solution of the extract of bark, made into a syrup, will readily be taken by infants, and may be safely exhibited from the very day they come into the world, or as soon as their bowels are emptied of the meconium by the mother's milk, or any other means.

CHAP. III. ACCIDENTS IN THE BIRTH.

DR. CLARKE observes, that fractures of the limbs and compressions of the brain often happen in difficult labours; and that the latter are often followed by convulsions soon after delivery. In these cases, he says, it will be advisable to let the navel-string bleed two or three spoonfuls before it be tied. Thus the oppression of the brain will be relieved, and the disagreeable consequences just mentioned will be prevented. But if this has been neglected, and fits have actually come on, we must endeavour to make a revulsion by all the means in our power; as by opening the jugular vein, procuring an immediate discharge of the urine and meconium, and applying small blisters to the back, legs, or behind the ears. The femicupium, too, would seem to be useful in this case, by driving the oppressive load of fluids from the head and upper parts.

It sometimes happens after a tedious labour, that the child is so faint and weak as to discover little or no signs of life. In such a case, after the usual cleansing, the body should be immediately wrapped in warm flannel, and briskly tossed about in the nurse's

arms, in order, if possible, to excite the languid circulation. If this fail, the breast and temples may be rubbed with brandy or other spirits; or the child may be provoked to cry by whipping, or other stimulating methods, as the application of onion, or salt and spirit of hartshorn, to the mouth and nostrils. But after all these expedients have been tried in vain, and the recovery of the child absolutely despaired of, it has sometimes been happily revived by introducing a short catheter or blow-pipe into the mouth, and gently blowing into the lungs at different intervals. Such children, however, are apt to remain weak for a considerable time, so that it is often no easy matter to rear them; and therefore particular care and tenderness will be required in their management, that nothing may be omitted which can contribute either to their preservation or the improvement of their strength and vigour. Fractures, &c. must be treated as in adult subjects.

CHAP. IV. OF DENTITION.

ALL the disorders which arise from a retention of the meconium, such as the red gum, may easily be removed by the use of gentle laxatives; but the great source of mortality among children is the breeding of their teeth. The usual symptoms produced by this are fretting; restlessness; frequent and sudden startings, especially in sleep; costiveness; and sometimes a violent diarrhoea, fever, or convulsions. In general, those children breed their teeth with the greatest ease who have a moderate laxity of the bowels, or a plentiful flow of saliva during that time.

In mild cases, we need only, when necessary, endeavour to promote the means by which nature is observed to carry on the business of dentition in the easiest manner. For this purpose, if a costiveness be threatened, it must be prevented, and the body kept always gently open; and the gums should be relaxed by rubbing them frequently with sweet oil, or other softening remedies of that kind, which will greatly diminish the tension and pain. At the same time, as children about this period are generally disposed to chew whatever they get into their hands, they ought never to be without something that will yield a little to the pressure of their gums, as a crust of bread, a wax candle, a bit of liquorice-root, or such like; for the repeated muscular action, occasioned by the constant biting and gnawing at such a substance, will increase the discharge from the salivary glands, while the gums will be so forcibly pressed against the advancing teeth, as to make them break out much sooner, and with less uneasiness, than would otherwise happen. Some likewise recommend a slice of the rind of fresh bacon, as a proper masticatory for the child, in order to bring moisture into its mouth, and facilitate the eruption

of the teeth by exercising the gums. If these means, however, prove ineffectual, and bad symptoms begin to appear, the patient will often be relieved immediately by cutting the inflamed gum down to the tooth, where a small white point shews the latter to be coming forward. When the pulse is quick, the skin hot and dry, and the child of a sufficient age and strength, emptying the vessels by bleeding, especially at the jugular, will frequently be necessary here, as well as in all other inflammatory cases; and the belly should be opened from time to time by emollient oily or mucilaginous clysters. But, on the contrary, if the child be low, sunk, and much weakened, repeated doses of the solution of the bark, and the like strengthening medicines, ought to be prescribed. Blisters applied to the back, or behind the ears, will be often proper in both cases. A prudent administration of opiates, when their use is not forbid by costiveness or otherwise, is sometimes of great service in difficult teething, as, by mitigating pain, they have a tendency to prevent its bad effects, as a fever, convulsions, or other violent symptoms; and often they are absolutely necessary, along with the testaceous powders, for checking an immoderate diarrhœa.

When cathartics are necessary, but the child seems too tender and weak to bear their immediate operation, they should be given to the nurse; in which case they will communicate so much of their virtues to the milk as will be sufficient to purge the infant. This at least certainly holds with regard to some cathartics; such, for example, as the infusion of senna, particularly if a very weak infusion be employed, and not used to such an extent as to operate as a purgative to the nurse.

CHAP. V. OF WORMS.

THERE is no complaint more frequent among children than that of worms, the general symptoms of which we shall presently enumerate; but it must be observed, that all the symptoms commonly attributed to worms alone may be produced by a foulness of the bowels. Hence practitioners ought never to rest satisfied with administering to their patients such medicines as are possessed only of an anthelmintic quality, but to join them with those which are particularly adapted for cleansing the primæ viæ; as it is uncertain whether a foulness of the bowels may not be the cause of all the complaints. This practice is still the more advisable, on account of viscid humours in the intestines affording lodgment to the ova of worms; which, without the convenience of such a receptacle, would be more speedily discharged from the body.

The worms that infest the human body are chiefly of three kinds: the ascarides, or small round and short white worms; the teres, or

round and long worm ; and the *tænia*, or tape-worm. Children are most subject to the two former, though sometimes also to the latter.

The *ascarides* have usually their seat in the rectum.—The *teretes* or *lumbrici* are about a span long, round and smooth : they are seated for the most part in the upper small intestines : but sometimes they are lodged also in the stomach, and in any part of the intestines, even to the rectum.—The tape-worms are from two to forty feet long, according to the testimony of Platerus ; they generally possess the whole tract of the intestines, but especially the ilium : they very much resemble tape in their appearance, whence the name of tape-worm ; but another species of this genus, from the resemblance of each joint to a gourd seed, has the name of the gourd-worm.

In the Medical Transactions, vol. I. Dr. Heberden gives a very accurate account of the symptoms produced by the *ascarides*, from an eminent physician who was troubled with them all his life. They brought on an uneasiness in the rectum, and an almost intolerable itching in the anus ; which sensations most usually came on in the evening, and prevented sleep for several hours. They were attended with heat, sometimes so considerable as to produce a swelling in the rectum both internally and externally ; and if these symptoms were not soon relieved, a tenesmus was brought on, with a mucous dejection. Sometimes there was a griping pain in the lower part of the abdomen, a little above the os pubis. If this pain was very severe, a bloody mucus followed, in which there were often found *ascarides* alive. They were also sometimes suspected of occasioning disturbed sleep, and some degree of head-ach.

On this case Dr. Heberden observes, that the general health of the patient did not seem to have suffered from the long continuance of the disease, nor the immediate inconveniences of the disorder itself to have increased. “ It is,” says he, “ perhaps universally true, that this kind of worms, though as difficult to be cured as any, yet is the least dangerous of all. They have been known to accompany a person through the whole of a long life, without any reason to suspect that they had hastened its end. As in this case there was no remarkable sickness, indigestion, giddiness, pain of the stomach, nor itching of the nose, possibly these symptoms, where they have happened to be joined with the *ascarides*, did not properly belong to them, but arose from some other causes. There is indeed no one sign of these worms, but what in some patients will be wanting.”

The above-mentioned patient used purging and irritating clysters with very little success. One drachm and a half of tobacco was infused in six ounces of boiling water ; and the strained liquor being given as a clyster, occasioned a violent pain in the lower part of the abdomen, with faintness and a cold sweat : this injection, though

retained only one minute, acted as a smart purge, but did little or no good. Lime-water was also used as a clyster; which brought on a costiveness, but had no good effect. Six grains of salt of steel were dissolved in six ounces of water, and injected. This clyster in a few minutes occasioned an aching in the rectum, griped a little without purging, and excited a tenesmus. Some few ascarides were brought off with it; but all of them were alive. The uneasy sensation in the rectum did not abate till some warm milk was thrown up. Whenever the tenesmus or mucous stools were thought worth the taking notice of, warm milk and oil generally gave immediate relief. If purging was necessary, the lenient purges, such as manna with oil, were, in this particular case, made use of: rhubarb was found too stimulating. But, in general, the most useful purge, and which therefore was most usually taken, was cinnabar and rhubarb, of each half a drachm: this powder seldom failed to bring away a mucus as transparent as the white of an egg, and in this many ascarides were moving about. The cinnabar frequently adhered to this mucus, which did not come off in large quantities, when a purge was taken without cinnabar. Calomel did no more than any other purge which operates briskly would have done; that is, it brought away ascarides, with a great deal of mucus. Oil given as a clyster sometimes brought off these animalcules: the oil swam on the surface of the mucus, and the ascarides were alive and moving in the mucus itself, which probably hindered the oil from coming in contact with them and killing them.

The doctor also observes, that mucus or slime is the proper nest of the ascarides, in which they live, and is perhaps the food by which they are nourished; and it is this mucus which preserves them unhurt, though surrounded with many other liquors, the immediate touch of which would be fatal. It is hard to satisfy ourselves by what instinct they find it out in the human body, and by what means they get at it; but it is observable in many other parts of nature, as well as here, that where there is a fit soil for the hatching and growth of animals and vegetables, nature has taken sufficient care that their seeds should find the way thither. Worms are said to have been found in the intestines of infants born dead. Purges, by lessening this slime, never fail to relieve the patient; and it is not unlikely, that the worms which are not forced away by this quickened motion of the intestines, may, for want of a proper quantity of it, languish, and at last die; for if the ascarides are taken out of their mucus, and exposed to the open air, they become motionless, and apparently die in a very short time. Dr. Heberden supposes that the kind of purge made use of is of some consequence in the cure of all other worms as well as ascarides; the animals being always defended by the mucus from the immediate action of medicines; and that therefore those purges are the best which act briskly, and of which a repetition can be most easily

borne. Purging waters are of this sort, and jalap especially for children; two or more grains of which, mixed with sugar, are most easily taken, and may be repeated daily.

From the case above mentioned, and from Dr. Heberden's observations, we may easily see why it is so difficult to destroy these animals: and why anthelmintics, greatly celebrated for some cures, are yet so far from being specifics in the disease. As the worms which reside in the cavities of the human body are never exposed to the air, by which all living creatures are invigorated, it is evident, that in themselves they must be the most tender and easily destructible creatures imaginable, and much less will be requisite to kill them than any of our common insects. The most pernicious substances to any of the common insects are oil, caustic fixed alkali, lime, and lime-water. The oil operates upon them by shutting up the pores of their bodies; the lime-water, lime, and caustic alkali, by dissolving their very substance. In the case of intestinal worms, however, the oil can have very little effect upon them, as they are defended from it by the moisture and mucus of the intestines; the like happens with lime-water: and therefore it is necessary that the medicine should be of such a nature as to destroy both mucus and insects together; for which purpose the caustic fixed alkali is at once safe and efficacious; nor is it probable that any case of worms whatever could resist the proper use of this medicine. A very large dose of any salt indeed will also destroy the mucus and destroy the worms; but it is apt to inflame and excoriate the stomach and intestines, and thus to produce worse disorders than that which it was intended to cure.

Dr. Heberden gives the following remarkable case of a patient cured of worms by enormous doses of common salt, after trying many other remedies in vain. In February, 1757, the patient was seized with uncommon pains in his stomach, attended with nausea, vomiting, and constipation of the bowels, and an almost total loss of sleep and appetite: he soon became much emaciated, and could neither stand nor walk upright; his belly grew small and hard, and closely retracted, insomuch that the sternum covered the navel, and the latter could scarcely be discovered or felt by the finger: his urine was always milky, and soon deposited a thick white sediment; his excrements were very hard and lumpy, resembling those of sheep, only of a brown colour; nor had he ever a stool without some medicine or other to procure it. In this situation he continued four years; during which time he had been in an infirmary, attended by eminent physicians, but was dismissed as incurable. At last he was advised by a neighbour to drink salt and water, as he said he knew one cured by it who had for many years been afflicted with the same kind of pains in the belly and stomach. As his disorder was now almost insupportable, he willingly tried the experiment. Two pounds of common salt were dissolved in a little water as

possible, all which he drank in less than an hour. Soon afterwards he found himself greatly oppressed at the stomach, grew extremely sick, and vomited violently; on the fourth straining he brought up about half a pint of small worms, part ascarides, and the rest resembling those worms which are called the botts, and frequently met with in the stomachs of horses, but much smaller, and about the size of a grain of wheat. The salt soon began to operate downwards, and he had five or six very copious fetid stools, tinged with blood; and in them discharged near an equal quantity of the same kind of worms he had vomited. Being greatly fatigued with the violence of the operations, he fell into a calm sleep, which lasted two hours, during which he sweated profusely, and awoke much refreshed. Instead of his usual pains, he now only complained of a rawness and soreness of his gullet, stomach, and bowels, with an almost unquenchable thirst; to allay which, he drank large quantities of cold water, whey, butter-milk, or whatever he could get. The urine he now passed was small in quantity, and rendered with very great difficulty, being highly saturated with the salt, from whence arose a most troublesome dysuria and strangury. However, these symptoms gradually abated by a free use of the liquors above mentioned; and on the third morning he was so well recovered, that he took two pounds more of salt, dissolved in the like quantity of water. The effects were nearly similar to the former; only that most of the worms were now burst, and came away with a considerable quantity of slime and mucus. The drought, strangury, &c. returned with their former violence, but soon yielded to the old treatment. He sweated very copiously for three days, slept easily, and by that time could extend his body freely: on the fifth day he left his bed, and, though very weak, could walk upright; his strength and appetite soon returned, and he became robust and well.

The anthelmintic medicines which have been recommended by one person or other are in a manner innumerable; but the principal are,

(1) *Quicksilver.* This is very efficacious against all kinds of worms, either taken in the form of calomel or corrosive sublimate. Even the crude metal boiled in water and the water drunk, has been recommended as an almost certain cure. But this, it is evident, can receive little impregnation from the mercury. If, therefore, it have any effect, it must be from some foreign and accidental impregnation. In most instances there can be no objection to mercury, but only that it is not endowed with any attenuating quality, whereby the mucus in which these insects reside can be dissolved. It therefore fails in many cases, though it will most certainly destroy worms where it can get at them.

(2) *Granulated tin.* This was for some time celebrated as a specific, and indeed we may reasonably expect good effects from it;

as, by its weight and grittiness, it rubs off the mucus and worms it contains from the coats of the intestinal canal, in which case they are easily evacuated by purgatives. In order to produce any considerable effects, it must be given in a large dose.

(3) *Geoffræa-inermis*, or cabbage bark. This remedy is used by the inhabitants of Jamaica. The first account of it which appeared in this country was published in the *Physical and Literary Essays*, vol. II. by Mr. Duguid, surgeon in that island. He acquaints us, that the inhabitants of Jamaica, young and old, white and black, are much infested with worms, especially the long round sort; the reason of which, he thinks, is the quantity of sweet viscid vegetables which they eat. On dissecting a child of seven months old, who died of vomiting and convulsions, twelve large worms were found; one of them filled the appendix vermiformis, and three of them were entwisted in such a manner as to block up the valvula tulpii, so that nothing could pass from the small to the great guts.—The cabbage bark, however, he tells us, is a safe and effectual remedy, and the most powerful vermifuge yet known; and that it frequently brings away as many worms by stool as would fill a large hat. He owns that it has sometimes violent effects; but this he ascribes to the negroes who make the decoction (in which form the bark is used), and not to the remedy itself.

Mr. Anderson, surgeon in Edinburgh, has also given an account of this bark and its operation, in a letter to Dr. Duncan, published in the *Edinburgh Medical Commentaries*, vol. IV. p. 84. From this account it appears, that there are two different kinds of bark; the one much paler than the other: the pale kind operates much more violently than the other. It often occasions loose stools, great nausea, and such-like symptoms, attended with great uneasiness in the belly: in one or two instances it was suspected of inducing syncope. The darker coloured kind resembles the cassia lignea, though it is of a much coarser texture. This kind, Mr. Anderson thinks, may be exhibited in any case where an anthelmintic is necessary; the dangerous symptoms might have followed either from the use of the first kind, or from an overdose of the second. The usual method of preparing the medicine is by boiling two ounces and a half of the bark in two quarts of water to a pint and a half. Of this a tea-spoonful may be given at first in the morning, gradually increasing the quantity till we come to four or five table-spoonfuls in a day. When exhibited in this manner, Mr. Anderson informs us, that he never saw it produce any violent symptoms, and has experienced the best effects from it as an anthelmintic. After the use of this decoction for eight or nine mornings successively, a dose of jalap with calomel must be given, which seldom fails to bring away the worms, some dead, some alive. If at any time the decoction produce more than one or two loose stools, a few drops of liquid

laudanum may be given; and, in general, Mr. Anderson gave 15 or 20 drops of the spirit of lavender with each dose.

In a letter from Dr. Rush, professor of chemistry at Philadelphia, to Dr. Duncan of Edinburgh, the following account is given of another preparation of this medicine. "It has long," says he, "been a complaint among physicians, that we have no vermifuge medicine which can be depended upon. Even calomel fails in many cases where there are the most pathognomonic signs of worms in the bowels. But this complaint, it is hoped, is now at an end. The physicians of Jamaica have lately found that the cabbage bark, as it is called in the West Indies, made into a syrup with brown sugar, is an infallible antidote to them. I have used above 30 pounds of it, and have never found it fail in one instance. The syrup is pleasant; it sometimes pukes, and always purges the first or second time it is given."

Notwithstanding these great encomiums, however, the cabbage bark * hath not come into general use in Britain. But diseases from the teretes, or lumbrici, as they are often called, the species of worm against which this bark is employed, much less frequently occur here than in some other countries. When they do occur, in almost every instance they readily yield to more gentle and safe anthelmintics; and the worms may not only be expelled by calomel, but by the vegetable bitters; as the powder of the semen fantonicum, or the like.

(4) *Coubage* or *cow-itch*. This is the *dolichos urens* or *pruriens* of Linnæus; and the principles on which it acts are of a mechanical kind. It is somewhat similar to the powder of tin, but has been reckoned much more efficacious. It might at first appear to occur as an objection to this medicine, that, by the hairs of it entangling themselves with one another, calculi might be formed in the intestines, or obstructions equally bad; or if the sharp points and hooks with which it abounds were to adhere to the nervous coats of the intestines themselves, they might occasion a fatal irritation, which could not be removed by any means whatever. But from the experience of those who have employed it extensively in practice, it would appear that these objections are entirely theoretical; and that it may be employed with perfect safety. The spiculæ, gently scraped off from a single pod, and mixed with syrup or melleas, are taken for a dose in the morning fasting. It is repeated in this manner for two or three days without any sensible operation; but even a very slight purgative taken afterwards has been found to discharge an almost incredible quantity

* The most accurate account of this vegetable, and its effects, has been given by Dr. Wright in the *Philosophical Transactions*; of which the reader will find a short view under the article *Gouffræ*, in the order of the alphabet, in the "English Encyclopædia."

of worms. And according to Dr. Bancroft, who has given a very particular account of its use in his *Natural History of Guiana*, it is one of the safest and most certain anthelmintics yet discovered; but, as well as the bark of the *Geoffræa*, it has hitherto been very little used in Britain, probably from its not being necessary.

Dr. Saunders gives this medicine in the following way :

(No. 34.) \mathcal{R} Dolich. pub, rigid. (Ph. Ed.) 3j;

Syr. simp. q. s. ut fiat electuarium.

Capiat cochlearium minimum, singulis auroris, ad tertiam usque vicem.

(5) *Indian pink*. This plant, which is the *spigelia Marilandica* of Linnæus, is also an American plant, and was first recommended in the *Edinburgh Physical and Literary Essays* by Dr. Garden, of Charlestown, in South Carolina. He is of opinion that a vomit ought always to precede the use of it; and informs us, that half a drachm of it purges as briskly as the same quantity of rhubarb. At other times he has known it produce no effect on the belly, though given in very large quantity: in such cases it becomes necessary to add a grain or two of calomel, or some grains of rhubarb; but then it is less efficacious than when it proves purgative without addition. The use of it, however, in small doses, is by no means safe; as it frequently produces giddiness, dimness of sight, convulsions, &c. The addition of a purgative, indeed, prevents these effects; but at the same time, as already observed, it diminishes the virtue of the medicine. The doctor therefore recommends large doses, as from them he never knew any other effect than the medicine's proving emetic or violently cathartic. The dose is from 12 to 60 or 70 grains of the root in substance, or two, three, or four drachms of the infusion, twice a-day.

In the *Medical and Physical Journal*, Dr. Barton, who writes on the *spigelia*, says, "In some parts of Carolina, &c. this invaluable plant is known, among other appellations, by the name of snake-root. It is the *unsteetla* of the Cherokee Indians. Every part of the plant is possessed of the anthelmintic property, and accordingly, in Carolina, the physicians employ the whole plant—chiefly in decoction. But the active power unquestionably resides more especially in the roots. It is the opinion of many persons, that the deleterious effects which occasionally occur from using this vegetable do not arise from any pernicious property inherent in the *spigelia*, but from the root of a distinct plant which is often mixed with the *spigelia*. I do not think this notion is entitled to any serious attention. The *spigelia* is, without doubt, a poisonous and narcotic vegetable. It is, in all probability, by virtue of this poisonous quality, that it proves so beneficial in cases of worms. I am acquainted with a very intelligent physician, who, in the exhibition of the *spigelia*, always deems it necessary, or proper, to

persevere in the use of the medicine until it produces some very decided effect upon the brain. I must confess, however, that I have often found it completely efficacious, without observing that it has occasioned the least inconvenience to the system. That it has sometimes done mischief, will not, I believe, be denied. Professor Bergius informs us, that he has known instances of convulsions cured by the spigelia, although no worms were expelled by it. Dr. Garden, speaking of this plant, says, 'It especially answers in continued or remitting low worm-fevers, in which I use its decoction, adding a small proportion of the root of the serpentaria Virgin. Its effects in abating the feverish exacerbations are so considerable, that in these I consider it as the most powerful sedative. It is an excellent attenuant.' I have been induced to take notice, in this place, of the observations of Bergius and Garden, because a pretty extensive use of the spigelia has now convinced me that this medicine very often affords relief, and, indeed, effects a cure, in cases in which worms are supposed to be present, but in which none are discharged. If I do not greatly mistake, this will be found an highly useful medicine in some of the febrile diseases of children, unaccompanied by worms, especially in the insidious remittent, which so frequently lays the foundation of dropsy of the brain.

(6.) *Common tobacco.* Dr. Barton says there is a peculiar mode of employing the leaves of tobacco, in cases of worms, which has, in many instances, produced very happy effects. The leaves are pounded with vinegar, and applied, in the shape of a poultice, to the region of the stomach, or other part of the abdomen. In consequence of this application, worms are often discharged, after powerful anthelmintics have been exhibited internally in vain. He says, we ought not to be surprised at this effect of the tobacco, since we know that the same vegetable, applied externally, is often very efficacious in inducing vomiting. Accordingly, the doctor has for some years been in the habit of applying tobacco leaves to the region of the stomach of persons who have swallowed large quantities of opium, and other similar articles, with the view to destroy themselves. It is well known, that in these cases the stomach is often extremely irritable, inasmuch that the most powerful emetics have little effect in rousing that organ into action.

(7.) *Melia Azedarach*, pride of India, called in South-Carolina poison-berry-tree and China-tree, is another remedy mentioned by Dr. Barton. "When I published the first edition of my collections," says he, "I had not any experience in the use of this vegetable. Since that period, however, I have used it in several cases of worms, and always with advantage. Indeed, I am inclined to think that the character of this new anthelmintic has not been too highly drawn. I will not assert that it ought to be preferred

to the spigelia; for I have had much more to do with this than with the melia. The melia is unquestionably a valuable anthelmintic, and ought to be introduced into general practice. I have employed the bark of the root, both in substance and in the shape of a saturated decoction. In the case of an adult, who took the decoction in large quantities, with the effect of discharging great numbers of worms, it seemed to occasion some confusion of the head, and trembling of the hands. These, perhaps, were accidental symptoms; but I am disposed, with the patient, to ascribe them to the medicine. The worm cases in which I have found the melia useful, were cases of the common round worm, or *lumbricus intestinalis*. I have not had any opportunity of trying how far it is a remedy against the *tænia*, or tape-worm. But I am informed that, in Carolina, it has been used with the effect of discharging great numbers of this species of worm. Should this prove to be the case, the melia will be doubly entitled to our attention as an article of the *materia medica*. It is not merely in cases of worms that this vegetable has been found useful. Mr. Andrew Michaux, an intrepid French botanist, informed me, that in Persia, where this tree grows spontaneously, the pulp which invests the stone of the fruit is pounded with tallow, and used as an 'antipsoric,' in cases of *tinea capitis* in children.

"Is the melia a narcotic or poisonous vegetable? Its remarkable effects in destroying and dislodging worms renders this probable, but not certain: for many articles which, with respect to the human body, are entirely innocent, are known to be noxious to intestinal worms, and many other animals. Such is sugar, as has been demonstrated by the experiments of Redi, Carminati, and other writers. The case which I have alluded to renders the deleterious quality of this vegetable very probable. I may add, that in some parts of Carolina the root is deemed poisonous."

Many of these medicines have had their day, and are now very far from being considered as specifics. From what has been already observed, it must pretty clearly appear, that powder of tin, cow-itch, or fixed alkaline salts, bid fairest for destroying worms in all the variety of cases in which they can occur. Alkalis indeed have been but little tried. We have known one case in which all the complaints have been removed by a single dose: we have also an instance of their efficacy, in an extraordinary case of a worm bred in the liver, mentioned in the 2d volume of the Medical Observations. The patient had a violent pain in the side, and sometimes in the shoulder, as the worm shifted its place: but, on the application of a lixivial poultice, the pain went out of the side entirely, and kept in the shoulder for some weeks.

The long round worms seem to be the most dangerous which infect the human body, as they have been known to pierce through

the stomach and intestines, and thus occasion death. The common symptoms of them are nausea, vomiting, looseness, fainting, slender intermitting pulse, itching of the nose, and epileptic fits. By the consumption of the chyle they produce hunger, paleness, weakness, costiveness, tumor of the abdomen, eructations, and rumbling of the intestines; but it is from the perforation of the intestines that the disease proves so frequently fatal. A child may be known to have worms from his cold temperament, paleness of the countenance, livid eye-lids, hollow eyes, itching of the nose, voracity, startings, and grinding of the teeth in sleep; and more especially by a very fetid breath. Very frequently, however, they are voided by the mouth and anus, in which case there is no room for doubt.

Dr. Hugh Smith considers the most efficacious anthelmintics to be tin and its preparations; mercurials, vitriolated iron, and sweet oil. He directs the following to be used according to circumstances:

(No. 35.) ℞ Limatur. stanni, ʒj. ad ʒiij.

Capiat mane et vesp. ex theriac. com. melle vel quovis alio vehiculo.

(No. 36.) ℞ Auri musivi, ʒij. ad ʒij.

Sumat bis die ex quovis vehiculo.

It may be necessary, he observes, during the use of the above preparations, to administer once in six or seven days a mercurial cathartic.

Amongst the different preparations of mercury, the hydrargyrus cum sulphure claims the preference.

(No. 37.) ℞ Hydrarg. cum sulph. ʒj.

Pulv. Rhabarb. ʒj.

M. ft. pulv.—Dof. ʒj ad ʒjss. bis die.

(No. 38.) ℞ Ferr. vitriolat. ʒjss. Solve in

Aq. cinnam.

Aq. distil. aa lʒss.

Dof. ʒij. ad ʒiv. mane et vespere.

(No. 39.) ℞ Ol. amygd. dulc.

Aq. fontan. aa ʒij.

M. ft. Haust. omni mane jejun. ventriculo sumend.

The doctor also directs oil to be injected to the extent of lʒss. glysterwise; which he says will greatly tend to the destruction of the ascarides, whose seat is principally confined to the rectum.

To the foregoing we will add the methods recommended by Dr. Temple; who says, the long round worm and short flat worm may generally be removed by some of the following medicines:

(No. 40.) ℞ Pulv. spigel. Maryland. gr. x.

Capiat mane et vespere in theriaca vel quovis idoneo vehiculo.

The above is proper for a child of eight years of age, and an adult may take half a drachm for a dose. A child of eight years old may also take,

(No. 41.) ℞ Pulv. rhab. gr. x.

Aloes socotorin. gr. j.

Calomel ppt. gr. ij.

M. f. pulv. mane primo sumend.

Vel, (No. 42.) ℞ Rafur. stanni,

Conf. absinth. aa ʒfs.

Syr. ejusdem q. f.

M. f. elect. capt. ʒj. omni mane.

Vel, (No. 43.) ℞ Siliquæ Hirsutæ q. v.

Theriac. com. q. f.

M. f. elect. capt. cochl. j. minim. mane primo per dies tres, et postea dof. rhab.

The ascarides, he observes, are generally seated just within the anus, and may be dislodged by some of the following means :

(No. 44.) ℞ Fol. absinth.

Fol. rutæ aa ʒj. coque in q. f.

Aq. puræ ad colat. ʒx.

Ol. olivæ ʒij. M. f. enema.

Vel, (No. 45.) ℞ Aq. calc. tepid. ʒxij. pro enemate.

Vel, (No. 46.) ℞ Decoct. pro enemat. ʒvj.

Aloes ʒj.

Solve et fiat enema.

In the Medical Commentaries, vol. II. we have an account of the intestines being perforated by a worm, and yet the patient recovered. The patient was a woman troubled with an inflammation in the lower part of the abdomen. The pain was so violent, that for six days she slept none at all; the tumor then broke, discharged upwards of a pound of thin watery sanies, immediately after which the excrements followed. The next day she was extremely low; her pulse could scarcely be felt; the extremities were cold; and there was a considerable discharge from the wound, which had already begun to mortify. She got a decoction of the bark with wine, which alleviated the symptoms; but in removing the mortified parts, a worm was found among them nine inches long, and as thick as an eagle's quill. By proper applications, the discharge of excrements ceased, and she recovered perfect health. She was sensible of no accident giving rise to the inflammation; so that in all probability it arose entirely from the worm itself.

The tænia, or tape-worm, as it is called, is one of those most difficult to be removed from the human body. It is of two kinds, the tænia solium, and the tænia lata; which are described by naturalists. The reason of its being so difficult to expel is, that though portions of it are apt to break off and be discharged, it is

endowed with a power of reproduction, so that the patient is little or nothing better. The symptoms occasioned by it are not different from those above described. A specific against the *tænia lata* was, at one time, so much celebrated in France, that the king thought proper to purchase it from the proprietor (Madame Nouffer), and the account of it has been translated into English by Dr. Simmons. The patients are required to observe no particular regimen till the day before they take the specific. That day they are to take nothing after dinner till about seven o'clock; after which they are to take the following soup: "Take a pint and a half of water, two or three ounces of good fresh butter, and two ounces of bread cut into thin slices: add to this, salt enough to season it, and then boil it to the consistence of panada." About a quarter of an hour after this, they take a biscuit and a glass of white-wine, either pure or mixed with water; or even water alone, if they have not been accustomed to wine. If the patient has not been to stool that day (which, however, is not usual with patients in this way), the following clyster is to be injected: "Take a small quantity of the leaves of mallows, and boil them in a sufficient quantity of water, mixing with it a little salt, and when strained off add two ounces of olive oil." Next morning, about eight or nine hours after the supper above mentioned, the specific is to be taken. This is no other than two or three drachms of the root of male fern, *polypodium filix mas* of Linnæus, gathered in autumn, and reduced to fine powder. It is to be taken in any distilled water, or in common water. This medicine is apt to occasion a nausea, to avoid which, Madame Nouffer allows her patients to chew any thing that is agreeable, but forbids any thing to be swallowed; or they may smell to vinegar, to check the sickness: but if, notwithstanding this, the specific be thrown up, a fresh dose must be swallowed as soon as the sickness is gone off, and then they must try to sleep. About two hours after this the following bolus is to be taken: "Take of the panacea of mercury fourteen times sublimed, and select resin of scammony, each ten grains; of fresh and good gamboge, six or seven grains: reduce each of these substances separately into powder, and then mix them with some conserve into a bolus." This composition is to be swallowed at two different times, washing it down with one or two dishes of weak green tea, after which the patient must walk about his chamber. When the bolus begins to operate, he is to take a dish of the same occasionally, until the worm be expelled; then, and not before, Madame Nouffer gives him broth or soup, and he is directed to dine as is usual after taking physic. After dinner he may either lie down or walk out, taking care to conduct himself discreetly, to eat but little supper, and to avoid every thing that is not of easy digestion.

The cure then is complete; but it is not always effected with

the same quickness in every subject. He who has not kept down the whole bolus, or who is not sufficiently purged by it, ought to take, four hours after it, from two to eight drachms of Epsom salt dissolved in boiling water. The dose of this salt may be varied according to the temperament and other circumstances of the patient.

If the worm should not come away in a bundle, but in the form of a thread (which particularly happens when the worm is involved in much tenacious mucus), the patient must continue to sit upon the close-stool without attempting to draw it away, drinking at the same time warm weak tea : sometimes this alone is not sufficient, and the patient is obliged to take another dose of purging salt, but without varying his position till the worm be wholly expelled.

It is unusual for patients who have kept down both the specific and purging dose, not to discharge the worm before dinner-time. This, however, sometimes happens when the dead worm remains in large bundles in the intestines, so that the fæces becoming more limpid towards the end of the purging, pass by it without drawing it with them. The patient may in this case eat his dinner; and it has been observed, that the food, joined to the use of a clyster, has brought about the expulsion of the worm.

Sometimes the worm is brought away by the action of the specific alone, before the patient has taken the purging bolus : when this happens, Madame Nouffer gives only two-thirds of it, or substitutes the salt in its stead.

Patients must not be alarmed by any sensation of heat or uneasiness they may feel during the action of the remedy, either before or after a copious evacuation, or just as they are about to void the worm. These sensations are transitory, and go off of their own accord, or by the assistance of the vapour of vinegar drawn in at the nose.

They who have vomited both the specific and bolus, or who have kept down only a part of them, sometimes do not void the worm that day. Madame Nouffer therefore directs them to take again that night the soup, the wine, and biscuit ; and, if circumstances require it, the clyster. If the worm do not come away during the night, she gives them early the next morning another dose of the specific, and, two hours afterwards, six drachms or an ounce of purging salt, repeating the whole process of the preceding day ; excepting the bolus, which she suppresses.

She observes, that very hot weather diminishes in some degree the action of her remedy : she therefore prefers the month of September for administering it ; but as she has not been always able to choose the season, and has been sometimes obliged to undertake the cure of patients in the hottest days of summer, she then gave her specific very early in the morning ; and with this precaution she saw no difference in its effects.

On the day appointed for the trial of this medicine before the commissioners nominated by the king of France, it was exhibited to five different persons; but only one of them was certainly known to have the *tænia lata* by having discharged parts of it before. That person was cured; the second voided a portion of the *tænia folium*; the third some ascarides, with a part of the *tænia folium*; the fourth and fifth voided no worms; but the last considered much of the viscid slime he voided to be worms in a dissolved state.

This trial was thought sufficient to ascertain the efficacy of the medicine, and further trials were made by those to whom the secret was communicated. The first voided two *tænia*, after much vomiting and eighteen or twenty stools; the second had no vomiting, but was as violently purged, and discharged two worms; the third had twenty copious stools during the night, and discharged the worm in the morning; and the fifth was affected in much the same manner. Some others, who were not relieved, were supposed not to have a *tænia*.

This specific, however, is not to be considered as a new discovery; the efficacy of fern in cases of *tænia* having been known long ago. Theophrastus prescribes its root, in doses of four drachms, given in water sweetened with honey, as useful in expelling flat worms. Dioscorides orders it in the same dose, and adds, that its effects are more certain when it is mixed with four oboli (forty grains) of scammony or black hellebore; he particularly requires that garlic should be taken beforehand. Pliny, Galen, Oribasius, and Aëtius, ascribe this same virtue to fern; and are followed in this by Avicenna, and the other Arabian physicians. Dorstenius, Valerius, Cordus, Dodonæus, Mathiolus, Dalechampius, who commented on Dioscorides, or copied him in many things, all mention the fern-root as a specific against the *tænia*. Sennertus, and Burnet after him, recommended in similar cases an infusion of this plant, or a drachm of its powder for young persons, and three drachms for adults. Simon Paulus, quoted by Ray and Geoffroy, considers it as the most efficacious of all poisons against the flat worm, and as being the basis of all the secret remedies extolled by empirics in that disease. Andry (*Gener. des Vers*, p. 246, 249), prefers distilled fern-water to the root in powder, or he employs it only in the form of an opiate, or mixed with other substances.

These are not the only authors who have mentioned the *tænia*; many others have described this worm, the symptoms it excites, and the treatment proper to expel it. Almost all of them mention the fern-root, but at the same time they point out other remedies as possessing equal efficacy.

For the cure of *tænia* in an adult, Dr. Temple orders the following:

(No. 47.) ℞ Pulv. polypod. fil. maf. ʒj ad ʒij.
Sumend. in idoneo vehiculo.

Four hours after it has been taken, this purgative should be administered :

(No. 48.) ℞ Pulv. jalap. ʒʒ.
Ol. menth. gtt. ij. m. f. pulv.

Or half an ounce of sulphur may be given, in any proper vehicle.

Many commend the bark of the root of the mulberry tree, the juice of the *auricula murus*, the roots of *chamaleon niger*, ginger, zedoary, decoctions of mugwort, southernwood, penny-royal, origanum, hyssop, and in general of all bitter and aromatic plants, &c. Some of them direct the specific to be simply mixed and taken in wine or honey and water ; others join to it the use of some purgative remedy, which they say adds to its efficacy. Oribasius, Sylvius, &c. distinguish the specific that kills the worm from the purgative that evacuates it, and direct them to be given at different times. Sennertus gives a very satisfactory reason for adopting this method. If we give, says he, the purgative medicine and the specific at the same time, the latter will be hastily carried off before it can have exerted its powers on the worm : whereas, if we give the specific first, and thus weaken the worm, it will collect itself into a bundle, and, being brought away by means of the purge, the patient will be cured. The cure will be more speedy if the *primæ viæ* have been previously lubricated. These precautions are all of them essential to the success of the remedy, nor are they neglected by Madame Nouffer in her method of treatment. The panada and injection she prescribes the night before, to lubricate the intestines and prepare the *primæ viæ*. The fern-root, taken in the morning, kills and detaches the worm : of this the patients are sensible by the cessation of the pain in the stomach, and by the weight that is felt in the lower belly. The purgative bolus, administered two hours after this, procures a complete evacuation ; it is composed of substances that are at once purgative and vermifuge, and which, when administered alone, by different physicians, sometimes succeeded in expelling the worm. If this purgative appear to be too strong, the reader is desired to recollect, that it produced no ill effects in either of the cases that came under the observation of the physicians appointed to make the trials ; and that in one of those cases, by diminishing the dose, they evidently retarded the evacuations.—Regard, however, they observe, is to be had both to the age and the temperament of the patient, and the treatment should always be directed by a prudent and experienced physician, who may know how to vary the proportions of the dose as circumstances may require. If the purgative be not of sufficient strength, the worm, after being detached by the specific, remains too long a

time in the intestines, and becoming soon corrupted is brought away only in detached portions : on the other hand, if the purgative be too strong, it occasions too much irritation, and evacuations that cannot fail to be inconvenient.

Madame Nouffer's long experience, indeed, taught her to distinguish all these circumstances with singular adroitness.

This method of cure is, we have seen, copied, in a great measure, from the ancients : it may be possible to produce the same effects by varying the remedies ; but the manner of applying them is by no means indifferent : we shall be always more certain of success, if the intestines be previously evacuated, and if the specific be given some time before the purgative bolus. It is to this method that Madame Nouffer's constant success is attributed.

Her remedy has likewise some power over the *tænia solium* ; but as the rings of this worm separate from each other more easily than those of the *tænia lata*, it is almost impossible for it to be expelled entire. It will be necessary, therefore, to repeat the treatment several times, till the patient cease to void any portions of worm. It must likewise be repeated, if, after the expulsion of one *tænia solium*, another should be generated in the intestinal canal. This last case is so rare, that it has been supposed that no person can have more than one of these worms, and for this reason it has been named the *solitary worm*, which, being once removed, could never be renewed or replaced by a second : but experience has proved, that this notion is an ill-founded prejudice, and we know that sometimes these worms succeed each other, and that sometimes many of them exist together. Two living *tænia* have been frequently expelled from the same patient. Dr. de Haen (*Rat. Med.* tom. viii. p. 157) relates an instance of a woman who voided eighteen *tænia* at once. In these cases the symptoms are usually more alarming ; and the appetite becomes excessive, because these worms derive all their nourishment from the chyle. If too austere and ill-judged a regimen deprives them of this, they may be expected to attack even the membranes of the intestines themselves. This evil is to be avoided by eating frequently.

Such are the precautions indicated in this disease. The ordinary vermifuge remedies commonly procured only a palliative cure, perhaps because they were too often improperly administered. But the efficacy of the present remedy, in the opinion of the French physicians, seems to be sufficiently confirmed by experience. To the above account, however, it seems proper to subjoin the following observations by Dr. Simmons.

“ A Swiss physician, of the name of Herrenschiwand, more than twenty years ago, acquired no little celebrity by distributing a composition, of which he styled himself the inventor, and which

was probably of the same nature as Madame Nouffer's. Several very eminent men, as Tronchin, Hovius, Bonnet, Cramer, and others, have written concerning the effects of this remedy. It seems that Dr. Herrenschwand used to give a powder by way of preparation, the night before he administered his specific. Nothing could be said with certainty concerning the composition either of one or the other. The treatment was said sometimes to produce most violent effects, and to leave the patients in a valetudinary state. Dr. de Haen was dissuaded by his friends from using it, because it disordered the patients too much. It will be readily conceived, now that we are acquainted with Madame Nouffer's method, that these effects were occasioned wholly by the purgative bolus. It is not strange, that resin of scammony and jalap combined with gamboge, all of them in strong doses, should in many subjects occasion the greatest disorder. It seems likely, however, that much of the success of the remedy depends on the use of a drastic purge. Some of the ancients, who were acquainted with the virtues of the farn-root, observed that its efficacy was increased by scammony. Resinous purges, especially when combined with mercury, have often been given with success in cases of tænia. Dr. de Haen saw a worm of this sort, five ells long, expelled by the resin of jalap alone. Dr. Gaubius knew a woman who had taken a variety of anthelmintic remedies without any effect, though she had voided a portion of tænia an ell and a half long previous to the use of these medicines: but at length, after taking a purge of singular strength, she voided the worm entire. Many other instances of the same kind are met with in authors. Other remedies have been occasionally given with success. In Sweden, it has been a practice to drink several gallons of cold water, and then to take some drastic purge. Boerhaave says, that he himself saw a tænia measuring 300 ells expelled from a Russian by means of the vitriolum martis. All these methods, however, have been too often ineffectual."

From some late accounts, there is reason to believe that Dr. Herrenschwand's remedy for tænia does not so exactly agree with that of Madame Nouffer as Dr. Simmons seems to imagine. According to the account given by a gentleman who had his information from Dr. Herrenschwand himself, it consists entirely of gamboge and fixed vegetable alkali.

CHAP. VI. OF THE WORM-FEVER.

THE name of worm-fever is popularly given to those constitutional symptoms, affecting the pulse, which are occasioned by the irritation of worms.

The difficulty of curing what is called a worm-fever, arises,

according to Dr. Musgrave, from its being frequently attributed to worms, when the cause of the disorder is of a quite different nature. He does not mean to deny that worms do sometimes abound in the human body, nor that the irritation caused by them does sometimes produce a fever; but he apprehends these causes to be much more uncommon than is generally imagined, and that great mischief is done by treating some of the disorders of children as worm cases, which really are not so. Dr. Hunter, it is observed, is of the same opinion on this point; and he has, we are told, dissected great numbers of children who have been supposed to die of worm-fevers, and whose complaints were of course treated as proceeding from worms, in whom, however, there appeared, upon dissection, to be not only no worms, but evident proofs of the disorder's having been of a very different nature.

The spurious worm-fever, as Dr. Musgrave terms it, has, in all the instances he has seen of it, arisen evidently from the children having been indulged with too great quantities of fruit; though a poor cold diet may, he thinks, occasionally give birth to it. Every sort of fruit eaten in excess will probably produce it; but an immoderate use of cherries seems to be the most common cause of it. The approach of this disorder has a different appearance, according as it arises from a habit of eating fruit in rather too large quantities, or from an excessive quantity eaten at one time. In the former case, the patient gradually grows weak and languid; his colour becomes pale and livid; his belly swells and grows hard; his appetite and digestion are destroyed; his nights grow restless, or at least his sleep is much disturbed with startings, and then the fever soon follows; in the progress of which, the patient grows comatose, and at times convulsed; in which state, when it takes place to a high degree, he often dies. The pulse at the wrist, though quick, is never strong or hard: the carotids, however, beat with great violence, and elevate the skin so as to be distinctly seen at a distance. The heat is at times considerable, especially in the trunk; though at other times, when the brain is much oppressed, it is little more than natural. It is sometimes accompanied by a violent pain of the epigastric region, though more commonly the pain is slight, and terminates in a coma; some degree of pain, however, seems to be inseparable from it, so as clearly to distinguish this disorder from other comatose affections.

When a large quantity of fruit has been eaten at once, the attack of the disorder is instantaneous, and its progress rapid; the patient often passing, in the space of a few hours, from apparently perfect health, to a stupid, comatose, and almost dying state. The symptoms of the fever, when formed, are in both cases nearly the same; except that, in this latter sort, a little purulent matter is

sometimes discharged, both by vomit and stool, from the very first day. The stools in both cases exhibit sometimes a kind of curd resembling curdled milk, at other times a floating substance is observed in them; and sometimes a number of little threads and pellicles, and now and then a single worm.

Strong purgatives, or purges frequently repeated, in this disorder, are greatly condemned by Dr. Armstrong, as they in general not only aggravate the symptoms already present, but are sometimes the origin of convulsions. Bloodletting is not to be thought of in any stage of the disorder.

Although frequent purging, however, be not recommended, yet a single vomit and purge are advised in the beginning of the disorder, with a view to evacuate such indigested matter and mucus as happens to remain in the stomach and bowels. These having operated properly, there is seldom occasion for repeating them; and it is sufficient, if the body be costive, to throw up, every second or third day, a clyster, composed of thirty grains of aloes, dissolved in five ounces of infusion of camomile.

The diagnostics of worms are very uncertain; but, even in real worm cases, the treatment above recommended would, it is imagined, be much more efficacious than the practice commonly had recourse to. As worms either find the constitution weakly, or very soon make it so, the frequent repetition of purges, particularly mercurials, cannot but have a pernicious effect.

The diet of children disposed to worms should be warm and nourishing, consisting in part at least of animal food, which is not the worse for being a little seasoned. Their drink may be any kind of beer that is well hopped, with now and then a small draught of porter or negus. A total abstinence from butter is not so necessary, perhaps, as is generally imagined. Poor cheese must by all means be avoided; but such as is rich and pungent, in a moderate quantity, is particularly serviceable. In the spurious worm-fever, the patient should be supported occasionally by small quantities of broth; and, at the close of it, when the appetite returns, the first food given should be of the kinds above recommended.

The diet here recommended will, perhaps, be thought extraordinary; as the general idea is, at present, that in the management of children, nothing is so much to be avoided as repletion and rich food. It is no doubt an error to feed children too well, or to indulge them with wine and rich sauces; but it is equally an error to confine them to too strict or too poor a diet, which weakens their digestion, and renders them much more subject to disorders of every kind, but particularly to disorders of the bowels. In regard to the spurious worm-fever, if it be true that acid fruits too plentifully eaten are the general cause of it, it follows as a consequence, that a warm nutritious diet, moderately

used, will most effectually counteract the mischief, and soonest restore the natural powers of the stomach. Besides, if the disorder does not readily yield to the methods here directed, as there are many examples of its terminating by an inflammation and suppuration of the navel, it is highly advisable to keep this probability in view, and by a moderate allowance of animal food to support those powers of nature, from which only such a happy crisis is to be expected.

CHAP. VII. RICKETS.

THIS is one of the diseases peculiar to infancy. It seldom attacks children till they are nine months, nor after they are two years old; but it frequently happens in the intermediate space between these two periods. The disease shews itself by a flaccid tumor of the head and face, a loose flabby skin, a swelling of the abdomen, and falling away of the other parts, especially of the muscles. There are protuberances of the epiphyses of the joints; the jugular veins swell, while the rest decrease, and the legs grow crooked. If the child has begun to walk before he be seized with this disease, there is a slowness, debility, and tottering in his motion, which soon brings on a constant desire of sitting, and afterwards of lying down; inasmuch that nothing at last is moveable but the neck and head. As they grow older, the head is greatly enlarged, with ample futures; the thorax is compressed on the sides, and the sternum rises up sharp, while the extremities of the ribs are knotty. The abdomen is protuberant, and the teeth black and carious. In such patients as have died of this disease, all the solids appear soft and flaccid, and the fluids dissolved and mucous.

The rickets, said to proceed from a scrofulous or scorbutic taint in the parents, may, perhaps, be increased by that of the nurse. It is likewise promoted by feeding the child with aqueous and mucous substances, crude summer-fruits, fish, unleavened farinaceous aliment, and too great a quantity of sweet things. Sometimes it follows intermittent fevers and chronic disorders; and, in short, is caused by any thing which tends to debilitate the body, and induce a viscid and unhealthy state of the juices.

Dr. Bobba, of Italy, presented to the Medical Society at Paris some remarks on the cause of rickets. He says it is known that the bones owe their solidity to the phosphat of lime, and that consequently the cause of rickets has been ascribed to a want of that substance. However plausible this theory may be, there are cases recorded by Morgagni, Portal and Pinel, where a mollification of the bones was observed to be complicated with the gout. Such a complication seems at first sight to be impossible, as one disease

originates in a want, and the other in a superabundance, of the phosphat of lime. This contradiction, however, is but apparent; for, when the bones begin to mollify, we are not always entitled to conclude, that the phosphat of lime is entirely wanting in the system, but it is sometimes probable, that on account of an inactivity in the vessels which carry this substance to the bones, it is directed to other parts, producing arthritic concretions, preternatural ossifications, &c. Frequently it is deposited in the urinary system, partly from being absolutely superabundant, partly because any morbid cause prevents its being carried to the bones; and it is remarkable that in almost all the diseases of the bones the urine deposits a calcareous sediment. There are besides some rare cases, where this calcareous matter has deviated to the genitals and urethra, and gives rise most probably to that species of blenorrhagy, called by Swediaur arthritic. By a derivation, therefore, of the phosphat of lime from the bones to the joints, symptoms of gout are produced, at the same time a mollification of the bones, which complication is named *arthrititis rachitica*. Dr. Bobba farther observes, that a bad quality of the milk with which children are nourished is likely to be a frequent remote cause of the rickets.

The rickets do not usually prove fatal by themselves, but if not cured in time they make the person, throughout life, deformed in various ways; and often produce very pernicious disorders, such as carious bones in different parts of the body.

The cure is to be effected by mild cathartics, alteratives, and tonics, such as are used in other diseases attended with a debility of the system, and a vitiated state of the blood and juices. In the Western Islands of Scotland, the medicine used for the cure of the rickets is an oil extracted from the liver of the skate-fish. The method of application is as follows: First, the wrists and ankles are rubbed with the oil in the evening: this immediately raises a fever of several hours' duration. When the fever from the first rubbing subsides, the same parts are rubbed again the night following; and repeatedly as long as the rubbing of these parts continues to excite the fever. When no fever can be excited by rubbing the wrists and ankles alone, they are rubbed again along with the knees and elbows. This increased unction brings on the fever again; and is practised as before, till it no longer has that effect. Then the vertebræ and sides are rubbed along with the former parts; and this unction, which again brings on the fever, is repeated as the former. When no fever can be any longer excited by this unction, a flannel-shirt dipped in the oil is put upon the body of the patient: this brings on a more violent and sensible fever than any of the former unctions; and is continued till the cure be completed, which it commonly is in a short time.

A German physician, Dr. Strack, published a paper, in which he recommends the filings of iron as a certain remedy in the rickets. This disease, he observes, in general begins with children when they are about sixteen months old. It is seldom observed with children before they be one year old, and seldom attacks them after they pass two; and it is very generally worse where it begins early than where it begins late.

For effecting a cure, it is, he affirms, a matter of the utmost consequence to be able to distinguish, very early, whether a child will be afflicted with rickets or not. And this, he assures us, may be determined by the following symptoms: Paleness and swelling of the countenance; and in that part of the cheeks which should naturally be red, a yellow colour approaching to that of sulphur. When that is the case, he directs that a medicine should be immediately had recourse to, which will retard the further progress of the disease, and remove what has already taken place. For this purpose, he advises,
(No. 49.) *R. Limatur. ferri*

Rhabarb. pulv. fing. gr. v.

Sacch. alb. gr. x.

Fiat pulv. omn. mane et vesp. sumend.

If considerable looseness should be produced, it will be necessary, at first, to persist in the use of one dose only every day.

After a month's continuance in this course, according to Dr. Strack, there in general ensues a keen appetite for food, quick digestion, and a copious flow of urine; by means of which the fulness of the face and yellowness of the complexion are by degrees removed, while the natural colour of the countenance and firmness of the body in general are gradually restored. This practice, he assures us, has never failed of success in any one instance; not even in those children born of parents greatly afflicted with the rickets.

Dr. Smith says, the indications of cure will consist in strengthening the habit, and restoring to their tone, or figure, the parts that may have been vitiated or distorted.

As from the relaxed state of the *primæ viæ*, a quantity of pituitous humours are, for the most part, lodged in the stomach and intestines, a few grains of ipecacuanha, as an emetic, may be administered; and now and then a gentle purge of rhubarb, with nutmeg, the tinct. aloes, or some other warm stomach purgative. But we are principally to depend upon a bracing strengthening regimen, chalybeates, the bark, the cold bath, and exercise of the body. Chalybeate preparations in proper doses, according to the age of the patient, will be extremely advisable. Or, the *mars saccharatus* of the late Edinburgh Pharmacopœia, which is an elegant and agreeable form of a chalybeate for children, may be given, from a drachm to two, three or four times

Fig. 1

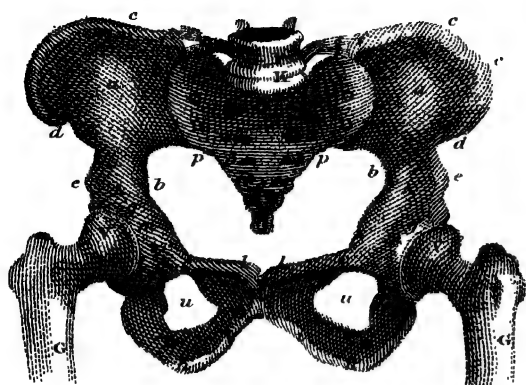
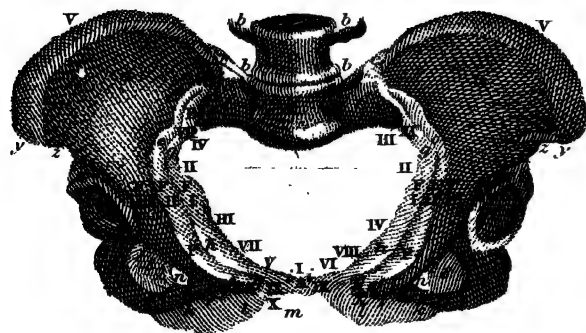


Fig. 8.



every day. The infusion of the Peruvian bark, with or without the diluted acid of vitriol, will be useful; more particularly, if any feverish heat, or hectic symptoms, should forbid the use of steel, till their removal.

In addition to the use of chalybeates, great benefit is often also obtained in this disease from the use of the cold bath; which, under prudent administration, is doubtless one of the most effectual remedies for this complaint with which we are yet acquainted.

CHAP. VIII. DISTORTIONS OF THE LOWER EXTREMITIES.

THE distortions to which the legs of children are liable may be reduced to three classes, viz. such as are caused by the unnatural shape of one or more bones, such as are caused by the improper combination of two or more bones, and those in which the two former causes are combined in the same subject. Mr. Sheldrake, in his observations on these complaints, has treated on the club-foot, the incurvation of the leg, and inflection of the knees.

(1.) *Club-foot*.—If we consider the diseases in question in the order they occur from the beginning of the patient's existence, the club-foot has the first claim to our attention: if all the varieties of that disease may be included in one view, it may be said to include all the circumstances of unnatural form and improper combination of bones; but, in order to form clear ideas of this disease, and the probability of treating it with success, it will be necessary to consider its varieties in different patients, and its variations in the same patient, but at different periods.

The club-foot may be occasioned by dislocation, or other accidents, at various periods of life; but, as these are anomalous cases, it is necessary to limit our attention to that which frequently occurs in *new-born children*, and is alone the subject of our present investigation. It is apparently occasioned by some disproportion between the uterus and its contents, or some peculiar position of the foetus in utero; and, in various cases, seems to take place at different periods before the birth, since in some, although the child has no power to hold the foot in its natural form and position, it may be immediately placed in them by the hand of the practitioner; in others, the distortion is too great to admit of that practice, although the foot is still capable of some motion; but in others it is perfectly rigid, and incapable of moving at all.

If a foot, wholly clubbed at the birth, be compared with one in the natural state, it will be found to vary from it nearly in the

following circumstances: the sole is turned upwards and inwards, so that the under part of the toes will be visible, the outer and upper part downwards; so that, if the child could stand, it would be upon the side, and some portion of the superior part of the foot instead of the sole. Vide Plate XIII. fig. 1, 2, 3.

It is to be lamented, that those who have written on distortions of the legs of children have been more attentive to the position in which the limbs are placed than the alteration in the natural state of the parts produced by those distortions. Hence we read of *varii* and *valgi*, in which the feet are turned outwards or inwards, without being able to form a clear idea of the cause of these deviations from the natural forms; by some they are said to be occasioned by luxations, dislocations, &c. by others they are attributed to the unnatural form of bones, anchylosis, &c. and the methods of treating them recommended are equally vague and destitute of any well-founded principle: so much so, that if we except one method of treating the club-foot recommended by Mr. Cheselden, and which is only applicable to one particular state of the disease, it will be, perhaps, impossible to produce a single proof that this disease has been perfectly cured in any instance whatever.

Mr. Cheselden mentions, with approbation, a method of curing the club-foot, by placing it in its natural position, and binding it with strips of cloth, dipped in white of eggs, to confine it there, and repeating this operation until the defect is cured.

Another method of treating this disease has been by fixing leg-irons of various constructions upon the leg, and binding the foot upon them, with a view to reduce it into its natural state by compression from the bandage. A third method has been by placing the foot in boxes of tin, lead, or copper, of a convenient form, and binding them so that the compression of these boxes shall reduce it to its natural state. It has been proposed to effect the same purpose by binding the feet in strong boots of leather, &c. Some advise that the feet should be bound as flat as possible upon two metal soles, and these inserted into two shoes, connected together by an iron fixed in each heel: this iron contains a joint with a ratchet wheel; when the feet are confined in the shoes, the toes are turned outwards by degrees; the ratchet wheel is to confine them in their newly-acquired situation, and, by a repetition of this process, the feet are to be turned into their natural situation.

It is obvious, that Mr. Cheselden's method can only be useful in that particular state of the disease in which the foot can be immediately placed in its natural position; some such cases have been cured upon this principle, by keeping the feet bound up with strips of adhesive plaster, until they had acquired the proper

habit ; but where it is intended to produce an alteration in the form of the foot, this method is generally insufficient.

The other methods that have been mentioned are founded upon an idea that the disease is caused by malformation of the bones of the foot or leg, perhaps of both ; but Mr. Sheldrake contends, that this is not the fact. He even undertakes to shew, that if it was a disease of the bones, these methods are not calculated to remove it ; and, of course, some more adequate mode of treatment is necessary.

“ It has been asserted,” says he, “ by the friends of this system, that the bones of young children are so soft, that, by the compression of proper bandages, they may easily be reduced into their proper form : without denying the whole of this position, it will be easy to shew the fallacy of the latter part of it. Whatever bandage acts upon the bones, must previously act upon the soft parts under which they lie : it is obvious, that the delicate structure of a new-born infant cannot bear much compression without being injured ; and if the bandages are so applied as not to injure the soft parts, they can produce no effect upon the bones : it is likewise to be remarked, that a simple bandage is tightest, consequently produces the greatest effect, when it is first applied ; but as it cannot be so applied as absolutely to prevent all motion of the parts, the attempts of the child to set itself at liberty soon loosen the bandage ; so long as they remain without being rebound, no effect whatever is produced ; his strength and impatience of restraint increases, the inconveniences of this mode of proceeding are multiplied daily, and the advantages which were at first expected from it diminish in proportion, till in a short time it is laid aside.” The shoes with iron soles Mr. Sheldrake thinks liable to equal, if not greater, objections ; and he confidently asserts, that it will be difficult, if not impossible, to produce a single instance of a club-foot, completely diseased, being cured by any of the methods mentioned above.

When it was thought advisable to apply mechanical inventions for curing the distorted legs of children, the mechanism used in the treatment of fractures naturally suggested a principle upon which such instruments might be made ; but though there is some analogy between the principles upon which fractures and distortions of the extremities should be treated, so far as mechanical application is concerned, the difference between the two diseases is so great, that what may justly be considered as perfection in the treatment of the one, would be very inadequate if relied upon when applied to the other. In fractures, the intention is fully answered by keeping the limb steady in one position until a cure is effected, and the mechanical assistance necessary to effect this is perfectly in the surgeon's power ; but, in order to cure

distortions in the limbs of children, the action of the instruments to be used should be permanently exerted, and capable of being constantly increased; for the moment the progress of that action is discontinued, all progress towards a cure is at an end.

As the joints are too frequently the parts most affected by those distortions, and as the time requisite to effect a cure is supposed to be very great, the machinery used should be so adapted as to admit of *loco-motion*: this is commonly done by making joints in the irons correspondent to those in the limbs, and leaving the bandage so loose as to admit of the necessary motion, which, it is evident, renders them almost useless, supposing they were in themselves an adequate remedy for the disease.

The principle upon which all these instruments are constructed is to place a strait support on one side of the distorted limb, and, by means of bandages, bind it to that support till it becomes straight.

As there is an indispensable necessity for making joints in these instruments, and leaving the bandages so loose as to allow of necessary motion in the limb, and as simple bandage, to which principle this apparatus is reducible, can only act by compression, it is evident that in practice they cannot produce the effect, of which, in theory, they may be thought capable. In order to apply them, they are usually fixed to shoes, and therefore their connection with the limb they are intended to act upon is not sufficiently intimate to keep it in its natural direction; and as removing them from one shoe to another is extremely troublesome, a common practice is to make them as strong as possible, in order to make this removal less frequently necessary: hence it frequently happens, that in addition to all other imperfections of this mode of treatment, a child, naturally perhaps delicate, and rendered more infirm by imperfections in its limbs, is incumbered with an unnecessary weight of iron and shoe, and that weight so applied as to act upon mechanical principles in the most disadvantageous manner, as an impediment to his loco-motive power, and all this under the mistaken idea of assisting his motion and curing his deformity.

After saying thus much of the defective principles upon which the instruments usually employed for the cure of distorted limbs are constructed, Mr. Sheldrake describes a method of treating these diseases, by which, he says, they may be more speedily and effectually cured.

The idea upon which this method is founded is to substitute a spring, so adapted to the nature of the distortion, that when bound upon the limb, its action will *draw the deformed parts into their natural situation*; when it is necessary to allow of motion in the limb, that motion, by increasing the re-action of the spring, accelerates the cure.

Upon a slight inspection of the disease in question, one might perhaps be excused for saying so much deformity could only be occasioned by malformation of some bones in the foot; but when the natural progress of ossification is considered, it will be difficult to find an excuse for saying those bones are unnaturally shaped, when they are so near the cartilaginous state, that they can hardly be said to have become bones at all: in fact, there is great reason to believe that at this period the bones are not the seat of the disease; of course, all attempts to relieve it, by operating upon them, will always prove futile and ineffectual.

From circumstances already mentioned, the club-foot is evidently occasioned by some compression prior to the birth; and if the position of the fœtus in utero be considered, it will be evident that this compression will deprive the exterior muscles of the foot of all power of moving, and, in consequence, of much of their power of contracting themselves, on which much of their capacity for motion depends; the contractile power of the flexor muscles is proportionably increased; and, in consequence, the foot is incapable of resuming its natural situation after the compression is removed.

Voluntary muscular motion, at least so much of it as relates to loco-motion, seems to depend upon this principle; every set of muscles which act upon any part in a peculiar manner are equal in power to their antagonists, and every action is performed by connecting volition with the muscles proper to produce it; the first action is counteracted by transferring volition to the antagonists in their turn, and, so long as it can be thus equally transferred from one to another, the natural form of the parts will be preserved, and their actions properly performed: but if, by any accident, the peculiar action of any muscle is impeded, the corresponding action of its antagonist is increased, and this inequality of action will continue to increase till the impediment is removed: upon due consideration it will therefore appear, that this effect is produced by the compression of the fœtus in utero, and the child is born with his feet distorted by contraction of all the flexor muscles of the foot.

A child, from the time of its birth, has inclination to move, though it possesses but very imperfectly the power of directing its motions; this is acquired by efforts continually repeated until it begins to walk: if the parts are naturally formed and no accident intervenes to impede their motion, it then acquires the power of using its feet in the natural way; but if there is any impediment to their natural motion, it acquires the habit of moving as near to the natural as that impediment will admit: hence it is evident, that the cure will be more difficult in proportion as the attempt is deferred after the birth, because, in a patient of five or

six months old, it will be necessary to counteract the diseased habitual action of the parts, as well as the original impediment.

If a child that has feet of this kind is suffered to walk before a cure is attempted, it is evident that he must place his feet in a position that will not bear him, without undergoing further alteration by sustaining his weight: this must produce additional deformity, by still further deviating from the natural relative position of the bones: though this circumstance may not render a cure impossible in all cases, it certainly will make it more complex, tedious, and uncertain, as in every one it may not be easy to determine whether the position in which they are placed by it may not be such as will render a cure absolutely impracticable.

If no attempt is made towards a cure before the bones of the foot are completely ossified, it is certain that they will acquire some deformity, and so much of the disease as depends on deformity of the bones is, from that moment, irremediable: but circumstances certainly do exist in many cases at this period, which may be alleviated so far as to render the feet more useful than they would be if entirely neglected. If the disease is neglected until the bones are completely ossified, and the patient so far advanced in life as to have acquired fixed habits of using his feet, all attempts towards a cure must be considered as extremely absurd, although he must still have recourse to assistance from art, in order to enable him to move with any facility.

If this theory of the disease should be just, it will appear that the cure must be effected by extending the contracted muscles, by increasing the power of those which have been diminished, and thus restoring that equilibrium which always exists between the flexor and extensor muscles in the natural state: this cannot be done by bending, twisting, or binding the feet in any particular position, which is all that has been attempted by the various methods that have as yet been recommended with a view to effect a cure; it can only be effected by applying, externally, an elastic power so adapted to the existing state of the parts as to render the extensor muscles of the foot, with such assistance, something more powerful than the flexors, without producing absolute permanent extension. By proceeding in this manner, the feet will be stimulated to action; that action will increase the effect of the elastic bandage applied, and accelerate the restoration of the parts to their natural state.

Mr. Sheldrake contends, that if these ideas of the disease are just, and the proposed method of treating it practicable, he is authorised to draw the following conclusions *a priori*, viz.

1st. That species of club-foot with which children are frequently born may be perfectly cured, provided the cure is undertaken before the child begins to walk, though the difficulties to be

overcome will always be increased in proportion as the attempt is deferred after the birth.

2d. It is not impossible that many cases may be perfectly cured, if undertaken after the patient has walked, though this must depend upon circumstances, in particular cases, which cannot be foreseen, and therefore is not advanced as a general fact. It is certain, however, that in every case of this description, the deformity may be greatly diminished, and the feet rendered more useful than if totally abandoned to their fate.

3d. If the cure is not attempted till the bones are completely ossified, it cannot be effected, and, in many cases, the deformity cannot even be alleviated, though the exertions of the art may be necessary, to prevent it from being increased.

Mr. Sheldrake next adduces several facts which seem to justify the preceding conclusions. The following cases are supported by the testimony of different medical gentlemen who had examined them.

CASE I.—“On December 17th, 1793, I was desired to see a child born with two club feet; he was then twenty-three days old. The gentleman who attended as accoucheur thought nothing could be done to assist, and therefore had abandoned him to his fate.

“Upon examination it appeared, that the gastrocnemii muscles and tendo achilles of each leg were contracted as much as possible, and the foot drawn into the position it must always be placed in by that contraction of those parts: the tibialii were likewise contracted, of course the inside of the foot was hollow, and the outer convex; all the flexor muscles of the foot were contracted, by which means the whole foot was turned downwards; in its general appearance, the foot was shorter and thicker than it naturally should be, and placed in such a direction, that if the child had been capable of standing, the exterior and superior parts of the metatarsal bones would have touched the ground; the disproportion between the fore part of the foot and the heel was so great, that I was inclined to believe, contrary to the general idea I had formed of the disease, that the os calcis was smaller in proportion than it should be; one of the feet was perfectly rigid, the other capable of being moved a little by bending it with the hand, and it had been observed that both had grown worse since the child was born.

“Whoever is acquainted with the structure of the foot, and action of its parts, will allow, that any attempt to cure this deformity, by bending the feet in any particular direction, must have proved injurious instead of beneficial; and if my system of treating it was practicable, it could only be effected by applying an elastic power, and varying its action so as to produce extension

of the different contracted muscles alternately, thus proceeding by degrees till the feet were brought into their natural state."

"My first attempt was to produce extension of the gastrocnemii muscles and tendo achilles in each leg, since it is certain that if any part of the foot could be brought upon the ground, forming at the same time a proper angle with the leg, and the action of those parts preserved, the patient would at least be able to walk with facility, whatever deformity might remain in the foot; on the contrary, I had seen cases in which the form of the foot had been altered, and great hopes of success formed in consequence, but the patient ultimately left in a helpless situation because this circumstance had not been attended to, or no means could be used to effect it.

"With this view I applied proper elastic bandages, unbinding them every other day and binding them again, so as to increase the power in proportion to the progress I had made. By proceeding steadily in this manner for one month I succeeded completely in that point; if the patient had been of age to use his legs at this time, he would have stood upon the outer edge of the foot, and been perfectly capable of using his legs in that situation.

"The apparent deformity of the foot still remained the same; I therefore now applied bandages upon the same principle to produce extension of the tibialii muscles, and correct so much of the deformity as was occasioned by the contraction of them. After some time I endeavoured to produce the same effect upon the flexor muscles of the feet, directing my efforts alternately to them and the tibialii; by unremitting perseverance in this plan I so far succeeded, that on March 17th, three months after I first saw the child, I removed every part of the apparatus I had used to effect the cure, as the feet were now perfectly well formed, and not the least deformity remained."

In Plate XIII. are given three views (fig. 1, 2, 3) of one of the feet, drawn December 17th, 1793, before the use of any bandage: fig. 4, 5, 6, are three views drawn from the same foot, March 17th, 1794. Upon comparing them an accurate estimate may be formed of the effect that had been produced.

It will be evident, upon comparing these views, that as the whole alteration in the feet had been produced by extension of the contracted muscles in a very short space of time, those muscles which pass over the superior part of the foot could not have recovered their proper tone and action; all the soft parts on the top of the foot were in wrinkles, in consequence of the alteration they had undergone: it was, therefore, to be feared, if the feet were set at liberty, at this time, they would in some degree relapse into their former deformity, from the imperfect action they were

at present capable of. To prevent this, Mr. Sheldrake continued to keep the feet bound in their natural position by very light bandages till he thought no further attention, in that respect, necessary.

CASE II.—A child born with two club-feet, by the advice of the late Mr. Middleton, had a person immediately employed to cure them. The screw shoes, already mentioned, were used with little good effect, and afterwards leg irons on the common principle, which he constantly wore till he arrived at years of maturity, when he was recommended to the care of Mr. Sheldrake.

"That I might be enabled," says Mr. S. "to give him all possible assistance, I had his feet cast in plaster of Paris; these casts are now in my possession, and fig. 7, 8, and 9, in the plate, are three views of one of these models, from which a good idea of his situation may be formed. The gastrocnemii muscle, and tendo Achilles in each leg are so totally contracted, that his heel cannot be brought within four inches of the ground, nor is he capable of moving any part of his feet in a natural direction; he is even incapable of standing erect without using very heavy irons, and half-boots, constructed with false heels to fill up all the space between his heels and the ground; and, by these means, he is enabled, in some degree, to bear the weight of his body, though, with the utmost exertion, he cannot walk above a mile or two without being extremely fatigued.

"If this case is compared with many we continually see that have been totally neglected, this patient's situation is much the least enviable; they are capable of walking with facility, notwithstanding their deformity is greater than his; but he, in consequence of the constant, though fruitless, attempts to relieve him, during the greater part of his life, has not acquired the diseased action peculiar to such feet, nor any mode of action that approaches at all to the natural, and, in fact, he is scarcely capable of moving at all."

This case certainly affords a striking contrast to the former, in which Mr. Sheldrake's instruments were applied at a period when mechanical force may be expected to give permanent relief.

(2.) *Incurvation of the bones of the leg.*—Of those distortions which take place after the birth, the earliest in its appearance, the most disagreeable in its consequence, and the most difficult to cure, is curvature in the bones of the leg: it never appears until the child begins to walk; often about that period, and not unfrequently at different periods after that time, it is said, in general terms, to be occasioned by placing the child on his legs too soon; this may sometimes produce such an effect, but by no means so frequently as to be considered a general cause of the disease. As this false idea of the cause has given rise to very improper

methods of treating patients so circumstanced, it may not be useless to make some enquiry into the nature of the disease, as that may lead to a more perfect method of cure, or, at least, to the prevention of the increase of some of its most disagreeable effects.

Without enquiring minutely into the nature of those substances of which the bones are formed, it will be sufficient to observe, that they consist of two distinct parts; an organised animal matter, from which they derive their form, and an earthy substance, deposited therein, to give that degree of strength which is necessary to enable them to perform their functions. In their progress from the birth to maturity, the central part of each bone is first formed, here its earthy part is first deposited, and proceeds gradually towards the extremities, until the whole is completed: hence it is, that the bones of the arms and legs are always most compact towards their central part, becoming more spongy and soft towards the extremities, and, of course, are there most liable to be acted upon with most effect by any cause that may diminish their strength or alter their form.

In order to eradicate the rickety disposition from the constitution, it may be necessary to ascertain how far it is connected with scrofula, or is a distinct disease; or, whether the softness of bone in rickety children is caused by abstraction or alteration of their earthy, or debility in their organised, part; but, as the intention of the present observations is only to obviate, to alleviate, or to cure, some of its mechanical effects, they will be confined solely to those alterations produced by this disease, which are in their nature likely to be counteracted by mechanical applications only. In conformity with these principles, it will be sufficient to observe, that the disease in question always appears in rickety children; if that disposition comes into action before the child begins to walk, its first effect, which is enlargement of the extremities of the bones, frequently escapes observation; but when he begins to walk, his legs bend under his weight, in consequence of deficiency of strength in the bones; that effect must continually increase, unless assistance is provided to supply that deficiency until the producing cause is removed from the constitution: the curvature of the legs undoubtedly is produced immediately by the weight of the body acting upon them while they are unable to support it; but the cause of this is not in placing the child upon his legs too soon, for the same effect would have taken place at whatever period he began to walk; it is the effect of a peculiar disposition existing in the constitution, which must be eradicated before that effect can be removed; and as one of the means of doing this must be by constant exercise, it is necessary that he should be stimulated to action by every means, providing such assistance as shall at the same time prevent the curvature from in-

creasing, and diminish it as much as the nature of the case will admit

By this disease the bones of the leg are sometimes bent directly forwards, the front of the tibia projecting over the foot; at others outwards, forming an arch, with the most projecting part over the outer angle; at others the reverse of this, and sometimes the curve consists of a mixture of two of these simple ones. A good idea of this disease may be formed from fig. 10, in the plate, which was drawn from a subject in Mr. Sheldrake's possession.

As this disease consists in positive curvature of some of the strongest bones in the body, it is in its nature more difficult to cure than any other species of distortion; and, by the common methods of treating it, little good has been done.

If we suppose a leg bent like the figure in the plate, to such an extent, that a line drawn perpendicular from the inside of the knee to the ankle is one inch distant from the most inflecting part of the tibia; if, from the application of instruments, it is prevented from growing worse, or if, from any alteration in the constitution, the tendency to curve is effectually checked, and the patient arrives at maturity, the leg will be nearly twice as long as it was when the curvature took place: by thus doubling the length of the curve, its apparent diameter will be diminished one half, notwithstanding its actual deviation from the perpendicular line has not been altered in the least; and as this effect only takes place in those cases where the tendency to distortion was checked very early, and the curvature but trifling, it is not difficult to conceive that an inattentive or prejudiced observer may easily mistake such apparent diminution for actual extermination of the disease.

Whoever considers the structure and form of the bones, the alteration that is produced in their substance by disease, and the manner in which they are affected by gravitation of the superincumbent parts acting mechanically upon them, will easily conceive why no degree of deformity that once exists in the bones of the leg can be removed without mechanical assistance.

It has been made a question, whether softness of the bones in ricketty children is caused by the abstraction or alteration of their earthy, or debility in their organized parts: leaving the discussion of this question to those in whose immediate province it is, it will be sufficient to observe, on the present occasion, that the effects of rickets always appear first in the softest part of the bones; as the legs, besides what they undergo in common with the other bones, suffer from the pressure of the body, whose weight they carry, they, particularly at the lower part of them, are always more bent than any other.

It must be evident, that so long as the disease which occasioned

the deformity in question exists in the constitution, its effects cannot be remedied, although a leg distorted, from this cause, may be prevented from growing worse, at whatever period the proper means may be applied : it is even certain, that removing the original disease will not remedy the curvature it has occasioned in the legs ; for, whatever may have been the pre-disposing cause, its ultimate effects have been produced by means merely mechanical ; the pressure, from weight of the body, has caused the legs, previously weakened by disease, to bend, and the same pressure will effectually prevent them from becoming straight, unless mechanical means are used to second the efforts of nature. There is even reason to believe, that when the legs have been bent beyond a certain point, the weight of the body alone will continue to increase the curve, even after the ricketty disposition has totally ceased.

If a general opinion may be given upon cases of this description, it may perhaps be said, with propriety, that all may be prevented from growing worse from the time they are afflicted by proper mechanical applications ; that many may be much alleviated, and not a few perfectly cured, by the same means. In giving this opinion, however, it must not be understood that this is to be easily effected, or even to be done at all by the methods commonly pursued. Even with the best methods that can be adopted, the progress of a cure must necessarily be most tedious, and the event uncertain ; so much so, that Mr. Sheldrake does not hesitate to say, that this, of all distortions in the legs of children, is the one least likely to terminate in a favourable manner.

(3.) *Inflexion of the Knees.*—This disease, as it may be produced by every cause that will occasion debility, is perhaps more common than any other distortion to which the legs of children are liable ; fortunately for the sufferers, however, it is more certainly curable than any of them, provided due attention is exerted in making use of the proper means.

In its worst stages it frequently happens, that the bones of the leg or thigh are distorted, sometimes, perhaps, from the circumstances of the disease, but much oftener, however, from the injudicious use of leg-irons badly made ; but, in its early stages, it is only a disease in the ligaments of the joints occasioned by debility.

This is the general cause of the disease ; its immediate causes in the many children that are afflicted with it are too numerous to be fully particularised ; every species of general debility, by diminishing the power of the legs to support the weight of the body and maintain their own natural position, will produce it ; every accident that gives the limbs a decided tendency to any particular position will occasion it ; but, as an attempt to particularise all these accidents and other circumstances would be, in

fact, to give the history of every instance of the disease; it will be sufficient here to mention the fact, leaving it to particular opinion to apply it in particular cases.

The common idea is, that the knees only are bent; but whoever has a just idea of the form and connection of the bones between the pelvis and sole of the foot must be sensible that the knees cannot be bent so far from their natural situation without occasioning a proportionable distortion in every other joint from the pelvis downwards. Upon viewing the manner in which the femur is connected with the pelvis, and the direction it takes from thence to its juncture with the tibia, as well as the natural position of the leg, it will be easy to conceive why, when the knee-joint is affected by weakness, from whatever cause, it should bend inwards, and the feet in consequence be removed further from each other than when in their natural state; this sometimes happens to such an extent, particularly when long neglected, that in some cases the feet have been found twelve inches apart, when the knees have been close together.

In some cases they have been known to bend outwards; but this is a different disease, compounded of this and incurvation of the bones of the leg; when they begin to bend outwards, the natural connection of the parts demonstrate why the knees must take the same direction. A much more troublesome species of this disease is where the bones of the leg bend outwards and the knees in: though this disease may sometimes take place from a combination of the causes already assigned, it is more frequently produced by the injudicious use of leg-irons.

In the simple inflection of the knees, it is commonly thought that the knees only are affected; it is allowed, indeed, that the ankles of the same patient are sometimes affected in a similar manner, but a separate cause is generally assigned for this; it is, however, certain, that the motions of the hip, knee, and ankle joints are so dependant upon each other, that no one of them can be distorted without producing distortion in the rest: it is equally certain, that all will be proportionably affected in whichever the distortion first appeared. This observation may be carried still further; for, as constitutional debility is frequently a remote cause of these distortions, it most commonly appears that both legs are affected, though not equally: hence it has often happened, that when one leg has been properly supported, the other has manifestly become worse; from which it is to be inferred, that although distortion of one leg does not, of necessity, follow the other, it so frequently happens, that it is always advisable to pay some attention to both, in order to check this effect as soon as it begins to take place. Excepting the debility or other accident that occasioned the weakness in the joint, all the effects of this

disease are to be accounted for upon mechanical principles only, and can only be remedied by mechanical means: the original disposing cause to be always treated as a separate disease.

The intention of cure in these cases is to place the limb in its natural position; or, where that cannot be done, to reduce it as soon as may be into that position, and retain it there till such an alteration has taken place as will preclude the probability of a relapse. The means which have been used to effect this are reducible to two kinds: 1st. By means of shoes with unequal soles, forcing the limb into its natural state; 2dly. Effecting the same purpose by means of leg-irons. Mr. Sheldrake offers a variety of reasons why neither of these means can be relied on; but none of the inconveniences justly attributable to the common machinery employed can be produced by the elastic bandages he has substituted in their stead. These are always acting on the limb in its natural state, whether in motion or at rest, and every motion of the limb increases the action of the bandage, thus enabling the patient to take more exercise than he could take without it; and by this means, in every sense, accelerating the cure.

It is evident, that a cure can only be effected by placing the distorted limb (from the pelvis to the foot) in a situation as near to the natural state as its circumstances will admit, taking care that its natural motions shall be performed, without allowing it to deviate from the proper direction; to this must be added a power that shall draw the limb perfectly into its natural state. This is effected by substituting springs, properly adapted, for the strait iron used in the old system: in order to do this, the natural and diseased action of the parts should be well understood; the compression produced by the bandages used, causes the spring to act in drawing the parts into their natural situation, and, by progressively tightening those bandages, the effect of that action may be progressively increased to any degree required: this effect will likewise be increased by the necessary motion of the limb increasing the action of the spring.

CHAP. IX. OF THE WATERY-HEAD.

THE name of Watery-Head is popularly given to the disease called Hydrocephalus. We have already (in Vol. II. p. 293) given a full account of this disease, and the opinions of the most eminent of the faculty as to the most suitable method of treating it. We are nevertheless induced to resume the subject in this place, for the sake of introducing to the reader's notice the following case, treated by an ingenious physician in the north of England, pledging ourselves, at the same time, for the authenticity of the facts.

"May 4th, 1802.—Mary Porter, a child aged four years, complains of violent acute pain in the head, chiefly at the vertex, shooting through the temples. She is observed frequently to apply her hand to those parts, and to cry out 'Oh, my head!' The face is commonly flushed, though sometimes very pale. The eyes appear somewhat protruded and suffused, and are very impatient of light. The pupils contract on the approach of a lighted candle, and the axes converge. Constant drowsiness, except when interrupted by convulsive contractions of the limbs. The pulse is very frequent, hard, and regular. Tongue white but moist. She expresses a great desire for cold liquids. Skin hot and dry—occasional vomiting, soon after taking food. The bowels very torpid. She was first seized on the evening of the 1st of May with sudden and excessive pain in the head, and passed the night in constant agitation; but no further account can be procured of the accession or progress of the symptoms. Before the present seizure the child has been frequently attacked with slight illness; but when in health was lively, playful, and extremely inquisitive.

(No. 50.) ℞ Pulv. jalap. gr. vj.

Calomel. gr. ij. M. f. pulv. stat. sumend. Statim applic. hirud. iij. tempor. utraque. Capiti raso empl. cantharid. amplum.

"To be kept cool with the head raised, and to take toast and water for drink.

"5th. 9 A. M. Physic produced one stool only; five leeches fixed, but bled freely. No diminution of the symptoms.

"8 P. M. The child has been less drowsy this afternoon; but now the stupor and inclination to be in bed are as great as on the 4th. The pain in the head is excessive, great intolerance of light, and the pupils now dilated. Is seized with occasional convulsive motions of the limbs. Pulse, skin and tongue, as before. Blister has risen well.

(No. 51.) ℞ Aq. ammon. acet. ℥iv.

Vin. antimon. gt. x. M. cap. coch. j. infant. cum pari quant. aq. puræ.

Statim fric. femora cum ung. hydrarg. fort. gr. xv. & rep. mane sequent.

Bibat ad libitum decoct. tamarind.

"6th. 9 A. M. The ointment was rubbed into the thighs last night and this morning. Restless in the night and a little delirious. Still complains of acute pain in the head, and the face much flushed. Dilatation of the pupils not increased. Pulse as before. Makes water freely, but has had no stool since the physic. The mixture excites vomiting.

Intermit. mistura.

(No. 52.) ℞ Pulv. jalap. gr. viij.

Calomel. gr. ij. M. f. pulv. statim sumend.

(No. 53.) R Pulv. fol. digital. gr. i.
Calomel. gr. ij.
Conf. Rosæ q. s. f. pil. vj. cap. j. mane & nocte
incipiens hora 7ma vespert.

Fiat fonticulus ex part. vetic. ope ung. canth. Contin.
ung. hydrarg.

" 7 P. M. The purgative has produced no effect. Much coma, frequent starting, and application of the hand to the head, but there is less intolerance of light. Pulse one hundred, and hard. Blister discharges freely.

(No. 54.) R Decoct. pro. enem. ʒiv.
Nat. vitriol. ʒss.
Tinct. sennæ ʒiij. M. ft. enema stat. injicend.
Statim appl. hirud. No. ij. temporibus utrisque.
Rep. cætera.

" 7th. 9 A. M. Has had four copious evacuations from the clyster, and the leeches bled freely. Pulse softer and less frequent. Face less flushed. Screamed several times in the night, but this morning has had some refreshing sleep. There is still a considerable degree of coma, but when roused is perfectly sensible. Has called for bread and milk this morning. Has from her first seizure voided her stools and urine involuntarily. The blister does not discharge. Gums not affected from the mercury.

Appl. empl. canth. pone aures utraque. Rep. pil. digital. ter in die. Contin. ung.

" 7 P. M. About mid-day the pain returned with great severity, and continued for one or two hours. Since that time the child has been quite easy, cheerful, and free from stupor. There is some intolerance of light, and the pupils contract on the approach of a lighted taper. The pulse, though still hard, is considerably softer and less frequent than last night. Still vomits after taking food, and has rejected the pill given at noon. Has had a natural stool, and voided much urine. Gums not yet affected.

Contin. pilul. & ung. hydrarg.

" 8th. 9 A. M. Has slept soundly without any startings or screamings, and has only vomited once in the night. This morning found her asleep, the respiration free and easy, and the pulse not more than one hundred and twelve, and softer. The skin is still rather hot. She makes no complaint except from the blister. The urine is copious, and she calls for the pot when it is wanted, but has had no stool since yesterday at noon. Refused to take her pill this morning.

Rep. unguentum, & pilul. ter die.

" 7 P. M. Has slept well through the day, makes no complaint of her head. Pulse one hundred and twenty. Skin not dry. Some thirst. Urine vented in natural quantity and of a pale colour. No stool.

Rep. enema purgans, &c.

" 9th. 9 A. M. Slept pretty soundly through the night, but has had occasional startings, and once screamed out. Does not complain of pain in the head, but the intolerance of light continues. Has not vomited after her food since yesterday. Although awake and sitting up, appears heavy and dull. Pulse one hundred and twenty, and soft. Face not flushed, but there is still some heat on the skin, though she does not complain of thirst. Has made but little water. The clyster produced one large stool. Gums not affected.

Statim applic. empl. canth. parti capitis posteriori. Omit. pilul. &c.

(No. 55.) ℞ Pulv. fol. digital. gr. ij.

Calomel. gr. viij.

Syr. q. s. ft. pil. xij. cap. j. ter in die.

Aug. ung. hydrarg. ad ℥j. mane et nocte.

" 10th. 7 P. M. Little or no alteration in the symptoms. The blister has risen well. Has complained of some griping in the night, and was therefore ordered to omit the pill at noon. Has taken milk and broth without vomiting, and has sat up an hour or two to-day, though she appeared dull and heavy, and the head was observed to incline to one side. When in bed she is with difficulty roused from her stupor. Makes no complaint of her head; no screaming, starting, or strabismus. The pulse more frequent and hard. Skin hot, but a little moist. Urine scanty. Had a natural stool at noon. No affection of the mouth.

Contin. medicamenta.

" 11th. 9 A. M. The child has been griped in the night and purged twice. Makes no complaint of her head. Has sat up two hours this morning, and appears more lively than yesterday. Pulse one hundred and twenty, and soft. Skin moderately cool. Takes milk and broth freely, and has made more water, which is high coloured.

Omit. pilulæ.

(No. 56.) ℞ Pulv. scillæ. exsiccat. gr. ij.

Digital. gr. ij.

Calomel. gr. v. Syr. q. s. ft. pil. viij. cap. j. mane et vespri. Contin. alia.

" 12th. 9 A. M. The child has been free from head-ach. Has sat up the greater part of yesterday, and appears more lively. The pupils contract freely. Pulse one hundred and twenty. Gums not affected. Takes food freely. Has had two natural stools with considerable griping. Complains of pain from the blister.

" 13th. No return of head-ach, screaming, or convulsive motion of the limbs. Sat up all yesterday, and complains of nothing except pain from the blister and gripes. Has had three loose stools. Pulse one hundred and eighteen. Appetite good. Flow of saliva in the night.

Intermitt. ung.

(No. 57.) R̄ Syrup. vulgaris ʒj. Tin. opii gt. xxv.

Cap. coch. infant. urgent. torminibus.

" 14th. No return of head-ach, but had appeared more drowsy yesterday afternoon. Only one stool since she took her phytic. Says the blistered surfaces are very sore, and discharge much. Appetite good: pulse as yesterday. Eyes natural.

Intermitt. syrup. anod.

Rep. ung. hydrarg. ʒj nocte maneque.

" 15th. As yesterday. Continuēt. ung. hydrarg.

(No. 58.) R̄ Rad. gentian. incis. ʒij.

Cort. aurant. sicc. ʒj. infunde in aq.

bull. ʒviiij. horæ per quadr. spatium.

Colat. adde tin. colomb.

Sp. æther. nitros. āā ʒfs. m. cap. ʒifs. ter in die.

" 17th. Complained a little of head-ach yesterday, and has vomited once or twice, but the pupils contract freely on the approach of light, and there is no strabismus. The face pale, the skin moderately cool and moist. Pulse frequent and hard, tongue white and moist; no appetite or thirst. Has had two or three stools daily, and makes water freely. The blistered surfaces are healed. The breath is foetid, the gums white but not tumid, and she complains of soreness in the root of the mouth, but no ptyalism can be perceived.

Rep. ung. et mistura amara.

Applic empl. cantharid. ampl. capiti.

" 18th. The blister not yet risen; makes no complaint of her head; face pale; pulse frequent and hard; makes urine and perspires freely; two stools with griping; no appetite; mouth sore.

Cap. pulmentum vinosum ad libitum. Contin. alia.

" 19th. Blister has risen well; three stools with considerable griping, but the mouth is not sore; makes no complaint of her head; appetite bad.

Omitt. ung. hydrarg.

(No. 59.) R̄ Cretæ præp. ʒifs.

Pulv. gum. arab. ʒij.

Tinct. opii gt. xxx.

Aq. cinnamom.

Aq. font. aa ʒiiij. m. cap. ʒfs. post singul. alvi purgation. Contin. mixt. amar. et pulmentum.

" 21st. Has had one stool since last visit; continues to perspire freely; the appetite returns and the child appears more lively.

Contin. mistura et pulmentum.

" 28th. Perspirations continuē, though not so profuse as before;

no return of pain in the head, or any other unpleasant symptoms. The functions gradually returning to their natural healthy condition.

"June 8th. The child appears perfectly recovered, although she has not quite regained her wonted flesh and strength."

To the foregoing account, in which the excellently *well-timed* application of mercury cannot but strike every practitioner of experience as a remarkable feature in this valuable case, we have to add, that the patient continued in health in the following December, and there is no reason to doubt but the cure is permanent.

CHAP. X. VACCINATION.

WE have treated, in a former volume, fully, of the disease for which vaccination is an effectual preventive. The process of applying this wonderful prophylactic, more properly belongs to this place; since the earliest periods of life are the best suited, in every respect, for its introduction. The novelty no less than the importance of the subject, will render us excusable for introducing it with some preliminary matter.

SECT. I. *Sketch of the HISTORY of the COW-POX.**

The task of alleviating the various diseases to which the human species are liable, has engaged the serious attention of the most learned philosophers and physicians in all ages. But while they have assiduously laboured in the vineyard of therapeutics, they have left that better part of medical science, *prophylactics*, in a state of inferior cultivation; whether from the greater difficulty of the undertaking, or from the little encouragement given to such attempts, by the slow and unwilling gratitude of mankind, it may not be easy to determine.

We are not insensible of the merits of our ancestors, or of the value of the remedies which they have suggested; but even those merits, and those remedies, must yield to the merits and the preventives of a HAYGARTH and a JENNER. If the advantages conferred on the world by the former are great, and great we must allow them to be, what estimate can be formed of our obligation to the latter? It was reserved for him to discover a prophylactic, which will exterminate the most fatal pestilence from the face of the earth, blunt the shaft of death, and ameliorate the condition of man.

* We are indebted, for this chapter, to Mr. RING, a gentleman whose labours, in establishing the practice of vaccination, and defending it against all its adversaries, are well known to the public.

The celebrated Boerhaave, treating of the small-pox, says, "There is reason to hope, a specific may be found to correct this malady; and we are impelled to seek for such a specific, by the vast advantage that would thence accrue to mankind."—This hope is at length realized; a specific is discovered for that disease, which has been the scourge of Europe for a thousand years, and committed such dreadful ravages in every quarter of the world.

This object, on which so great a portion of human felicity depends, was brought forward to public notice by Dr. Jenner; in the year 1798, in a work entitled, "An Enquiry into the Causes and Effects of the Variolæ Vaccinæ, a Disease discovered in some of the Western Counties of England, particularly Gloucestershire, and known by the Name of the Cow-Pox."

Since that time, Dr. Jenner has published two other tracts on the same subject; one entitled, "Further Observations on the Variolæ Vaccinæ," the other, "A Continuation of Facts and Observations relative to the Variolæ Vaccinæ." These three tracts have since been republished in one volume.

The author first enquires into the origin of the cow-pox; which he ascribes to a disease of the horse's heel, called the *grease*. The matter produced in this disorder, being applied to the teats of the cow, by a man who has been dressing the heels of a horse, and neglected those precautions which cleanliness requires, is supposed to be the cause of the distemper in question.

This, Dr. Jenner observes, is not only the popular opinion in Gloucestershire, but he has never been able to hear of a single well-authenticated case, where the genuine cow-pox ever occurred, in which it might not be traced either to this source, or to an infected servant, or infected cow, lately introduced into the farm. He moreover observes, that in the county of Chester, where men are not in the habit of milking, the disease is utterly unknown: and, to strengthen this argument, he observes, that farriers are in general less susceptible of variolous infection than other people. Of this he brings abundant proof, derived from respectable authorities; and we are assured, that he has since met with additional evidence, of the most satisfactory kind, on this head.

Experiments have been made, with a view to determine this point, by Dr. Woodville, Professor Coleman, Mr. Simmons of Manchester, and others; who have repeatedly inoculated cows with the matter of grease, but to no purpose. Mr. Tanner, a veterinary surgeon of Rockhampton in Gloucestershire, has, however, produced the disease in different instances, by removing a scab, and applying the dark-coloured fluid, issuing from the recent fissures on the heels of a horse, to that broad surface. Vaccine matter, thus generated, has been found similar in all its effects to that which is furnished by the cow-pox, when casually excited.

What tends greatly to corroborate the opinion of the cow-pox

originating from the greafe, is, that many persons have observed a pustulous disease, occasioned by the application of the virus of the horse's heel to the human skin; particularly Mr. Lupton of Thame, and Mr. Rankin of Eastbourne. These pustules were elevated at the margins and depressed at the centres; and in all respects analogous to the cow-pox.

But it is unnecessary to confirm by collateral and circumstantial testimony, what rests on the firm basis of positive evidence, and is proved by incontestible facts. This is acknowledged, on the present occasion, by the authors of the *Bibliothèque Britannique*. From Dr. De Carro we learn, that in the duchy of Holstein, where this disease prevails, and where children are sometimes inoculated with the cow-pox for the preservation of their beauty, men frequently milk cows; and horses, when affected with greafe, are frequently put into cow-houses, and consigned to the care of women. Hence there is a double facility of communicating the distemper to the cow.

Dr. Sacco of Milan, who has discovered the cow-pox in Lombardy, and transmitted to England matter which has proved successful, and which is acknowledged to be the virus of the genuine disease, is not inclined to attribute its origin to the greafe: but, as Dr. Hussion of Paris justly observes, the frequency, and the concurrence of the two distempers, in the neighbourhood of Milan, serve rather to confirm the opinion of Dr. Jenner, that they both spring from the same source.*

* Since the preceding observations were written, Dr. Loy of Aislaby, in Yorkshire, has published an account of some experiments made with the matter of greafe; by which it appears, that this matter is, in certain cases, endowed with a perfect antivariolous power, without being transmitted through the medium of the cow.

Dr. Loy is of opinion, that there are two species of greafe; of which one only possesses this property; which, he says, is attended with constitutional indisposition, and a general eruption, the other species being merely local.

With the matter of the former, Dr. Loy excited the genuine pustule in the nipple of the cow, by means of inoculation with a lancet. This is worthy of attention, since it is the first instance in which that operation has proved successful. Thus modified, the virus produced the genuine vaccine pustule in the human subject. When transferred immediately from the horse to the human subject, in several instances, the pustule which it excited was attended with a more violent inflammation than that which accompanies the vaccine vesicle, whether this vesicle be produced immediately from the cow, or indirectly, by matter taken from the human subject.

Dr. Loy had recourse to the *experimentum crucis*: he inoculated with active variolous matter those who had been previously inoculated with the matter of greafe, but in vain. Thus Dr. Jenner's opinion of the origin, as well as of the efficacy of vaccine matter, stands confirmed.

SECT. II. *Of the VACCINE AFFECTION as connected with that Disease in the Cow.*

1. This disease appears on the teats of the cow in the form of blue vesicles, surrounded with inflammation. The animal is indisposed, and the secretion of milk is lessened.

2 Vesicles similar to those on the nipples of the cow, but less blue, appear on the hands of the milkers; attended with febrile symptoms, and frequently with tumors of the axillæ. Vefications of the same kind may also take place in any other part, in consequence of inoculation by the fingers of the patient, impregnated with virus. These vesicles, produced by the casual infection, whether in the human subject or the brute animal, often degenerate into troublesome ulcerations, unless proper applications be employed. Those in common use are solutions of cuprum vitriolatum and zincum vitriolatum. Saturnine applications, however, will in all probability be found preferable.

3. Morbid virus of various kinds is capable of exciting a disease bearing some resemblance to that already described: but the diagnostics laid down by Dr. Jenner are sufficiently clear to enable us to distinguish the maladies from each other. The genuine cow-pox consists of *vesicles*; the spurious of *pustules*. These have neither the blueness, nor the central depression, which characterize the former; nor are they so infectious, nor so likely to be followed by obstinate ulcers, as the genuine kind.

4. The spurious cow-pox originates from common inflammation, whether occasioned by neglect of milking, luxuriant food, the sting of an insect, or any other cause. This affection is but rarely communicated to the hands of the milkers; and only deserves to be mentioned, on account of the possibility of its being mistaken for the genuine species of the cow-pox. It is, indeed, so benign, that in many places, where it is well known, no idea is entertained of its being contagious; and it may reasonably be doubted, whether it really is so, till the matter which the pustules contain has undergone a decomposition.

5. What renders the virus of the genuine cow-pox so extremely singular, is, that "the person who has been thus affected, is for ever after secure from the infection of the small-pox; neither exposure to the variolous effluvia, nor the insertion of the matter into the skin, producing this distemper."

6. Whether the cow-pox in the brute animal changes its appearance with the climate, or whether different species of that distemper are endowed with an antivariolous property, remains to be determined. One thing is certain, that a disease varying in some respects from that which prevails in England is accurately described by Dr. Sacco, of Milan; and that virus, furnished by

the same, has proved an effectual preventive of the small-pox, both in the hands of Dr. Sacco, and in those of our English inoculators; among whom it is now very widely disseminated, and it is also transmitted to almost every part of the globe. Dr. Sacco informs us, that the cow-pox is a malady, which till the present time belonged almost solely to the veterinary department; and that scarcely a single veterinary writer gives a proper description of it, or a proper diagnosis. It is represented by Dr. Sacco as consisting of little tumors, depressed in their centres, of a shining appearance, and reddish brown colour; containing a thin inodorous fluid, which thickens and forms an incrustation. These incrustations become of a deep red; and the cows suffer great pain at the time of milking. This distemper, which is not very commonly observed, is attended with diminution of appetite, a continual rumination without any materials in the mouth, and a motion of the lips resembling that of a person playing on a flute. The milk is lessened; the eye downcast. There is a slight symptomatic fever. The pustules are seated on the nipples and the lower part of the udder: sometimes, but rarely, a few appear about the eyelids and nostrils. This species of distemper, Dr. Sacco observes, is contagious to such a degree, that if one cow contracts it, in the course of ten days the whole herd will be infected.

7. That the genuine cow-pox is a security against the small-pox has been a popular opinion in many of the dairy counties of England, and in some parts of Ireland, from time immemorial. But many persons entertained doubts concerning the supposed prophylactic virtue of the vaccine virus, from seeing a number of apparent exceptions. These doubts it was reserved for Dr. Jenner to dissipate. He has remarked, that virus taken from a vaccine pustule, or ulcer, after a certain period no longer possesses an antivariolous virtue: that it may, indeed, produce a spurious pustule, but not the perfect disease. That genuine vaccine virus, taken at an early period, is capable of rendering the human body insusceptible of the small-pox, is an axiom as well established as any one in the whole circle of medical science.

8. That this antidote against the small-pox is not of a mere temporary nature, as some have absurdly supposed, appears evident, not only from analogy with the small-pox, but also from the most respectable authorities. Satisfactory proofs of this appear in the writings of Dr. Jenner, and others who have treated of this disease*. One instance, however, we shall adduce. A man who is now living at Berkeley had the cow-pox fifty-five years ago. Since that time, he has been repeatedly inoculated with variolous matter, and exposed to the natural infection of the small-pox, but in vain.

* They are amply supplied in Mr. RING's Treatise on the Vaccine Disease.

9. Similar experiments have been made on those who have undergone vaccine inoculation. These have repeatedly been inoculated with recent variolous matter, at every different period, from the first introduction of the practice to the present time; and have also been put to the test of exposure to the natural infection; but to no purpose.

10. The practice being now established on a sure foundation, it may not be improper to enquire more particularly into the merits of Dr. Jenner's discovery. That the preventive property with which the cow-pox is endued was, in some measure, previously understood, is a truth admitted by Dr. Jenner himself. It is to him, however, we are indebted for the discovery, that virus taken from the vaccine vesicle in the human subject is possessed of precisely the same qualities with that derived from the cow; and that it never degenerates, in consequence of repeated transmissions, in the human subject.

SECT. III. *Of the VACCINE AFFECTION, communicated by INOCULATION to the HUMAN SUBJECT.*

1. If the Suttonian mode of inoculating be adopted, which inflicts no larger a wound than what is indispensably necessary in order to lodge the virus under the cuticle, a small red speck, attended with a trifling degree of elevation, will appear, commonly on the third or fourth day, but sometimes at a much later period, as in variolous inoculation. In a day or two more a vesicle begins to rise, which gradually increases till the eighth or tenth day, and sometimes for a longer period. This vesicle is surrounded with an areola, which seldom becomes extensive before the ninth or tenth day; a circumstance necessary to be remembered, since it is one of the principal diagnostics between the genuine and the spurious, or imperfect, pustule. The central depression is another important characteristic of the true disease. The areola commonly begins to spread with rapidity about the ninth day; and on the tenth or eleventh arrives at its utmost extent. It then is, in general, about an inch or an inch and a half in diameter, with the circumference nearly of a circular form, but shooting out into points, and with an edge that is rather elevated and clearly circumscribed. Sometimes, either from friction, or extreme irritability of the habit, the inflammation becomes much more extensive. This may alarm persons who are not conversant in vaccine inoculation, and render it prudent to use a saturnine application. The most experienced inoculators, however, affirm, that this is seldom or never necessary; and that all the inflammation, terrifying as it may appear, will spontaneously subside.

When the areola is complete, the centre of the pustule begins to turn brown; and a scab is gradually formed, which in colour greatly resembles a tamarind stone. It is sometimes almost black; and commonly retains the depression in the centre. The scab is sometimes perfectly formed in four or five days from its first appearance; but its complete formation is occasionally protracted to a much later date. It adheres firmly to the cutis; and, if not separated by violence, will remain for ten days or a fortnight.

Instances have been known, or are said to have been known, in which a genuine pustule, perfect in every respect, has appeared in those who have had the small-pox or the cow-pox. This, however, is a very rare occurrence: but it is not very uncommon to meet with a pustule, in persons of that description, when subjected to vaccine inoculation, which resembles the regular pustule in its slow rise, in its central depression, and in the limpidity of the fluid it contains. It is, however, less circular, and not so large as the regular pustule. It seldom increases after the seventh day. The fluid it contains has been known to excite the genuine vaccine pustule; but ought not to be depended on for that purpose. This is not a spurious disease, but rather the genuine one of a diminutive size: it has, therefore, with some degree of propriety, been called the imperfect pustule. Among other characteristics distinguishing this from the spurious pustule, the dark colour of the scab that supervenes ought not to be omitted. This exactly resembles the dark mahogany colour of the incrustation that succeeds the perfect pustule.

2. When a pustulous disease is excited in the human subject, by virus received from a pustule in a cow, which never was of the genuine species, or which had lost its specific quality, the disease thus excited is denominated the *spurious cow-pox*. It differs essentially from the true cow-pox. It is not vesicular, but pustulous. The pustules want the circumscribed areola which attends the genuine distemper. They likewise want the central depression; and the matter which they contain is purulent. This distemper sometimes affects the hands and feet, the face, the breast, and other parts of the body. It is customary to call any kind of pustule that is occasioned by vaccine inoculation in the human subject a spurious pustule: it is, however, improper to term such an affection a spurious vaccine pustule, unless it can be proved to owe its origin to some specific virus derived from the cow.

3. The genuine vaccine disease in the human subject is local, and always an inoculated disease. It is now and then communicated to other parts from the pustule on the arm, by the nails of the patient. It may reasonably be presumed, that a constitutional fever always accompanies it; but this is not always perceptible: a circumstance of little moment, since a regular pustule, whether

attended with evident fever or not, is found to be an equal preservative against the small-pox.

4. The vaccine disease is occasionally attended with an eruption resembling the red gum, the tooth rash, or the nettle rash; but never with a truly pustulous eruption, unless it be complicated with some other disease, such as the small-pox. A number of errors were committed on the first introduction of the practice, which time and observation have now corrected; and Dr. Jenner's opinion seems to be generally adopted, namely, that the vaccine disease is, as far as regards a specific eruption, entirely local.

5. The vaccine fluid may be taken for the purpose of inoculation as soon as the vesicle appears, which is seldom before the fourth or fifth day. From that period it may be taken till the areola is complete; but it is less to be depended on after the areola begins to be extensive.

6. Should an inflammation appear in the neighbourhood of the puncture within twenty-four hours, quickly producing suppuration, we have reason to believe, that the system rejects infection. In persons who have had the small-pox, this is no uncommon occurrence: but in whatever case it happens, we ought to avoid taking matter from such a pustule for future inoculations; and never to pronounce the patient secure from future infection either of the small-pox or of the cow-pox, without some additional proof.

7. When matter is taken for inoculation, very minute punctures ought to be made in the edge or most elevated part of the vaccine vesicle, and time should be allowed for the fluid to ooze out. The point of the lancet, being then charged with this fluid, should be inserted in an oblique or almost horizontal direction, between the cutis and the cuticle; and suffered to remain there for some seconds, in order that the matter may diffuse itself, and be lodged in the puncture. It will also be advisable to dip the lancet a second time in the virus, and wipe it repeatedly on the puncture. Some practitioners inoculate in one arm, others in both; but we would advise that not more than one puncture should be made in one arm, lest, from the concurrence of inflammation, or ulceration, injury to the patient, and disgrace to the practice, should ensue.

8. When matter is intended to be used within a day or two, it may be kept on the point of a lancet; but when it is not intended to be used for several days, it should be preserved on glass or thread, and moistened with cold or tepid water at the time of insertion. When it is to be kept for a considerable time, it may be prudent to exclude air, by applying two pieces of glass charged with the fluid, and dried face to face to each other, and wrapping them up in goldbeater's skin. Care must be taken not

to dry the matter before a fire, nor to keep it in a warm place; for it is easily decomposed by heat. For the same reason, the glasses must not be cemented with sealing-wax.

9. The mode of inoculating with thread has given rise to a multitude of errors; either from the incision or the foreign substance contained in it, producing suppuration or digestion; which have been mistaken for the vaccine disease. On this account, where recent matter cannot be procured on a lancet, glass is the best vehicle for those who are not well versed in the practice. The vaccine fluid has proved effective after being kept several months; but no prudent person will ever trust to such virus, where that which is more recent can be obtained.

10. Cow-pock matter, taken at a late period of the disease, has been known to excite a genuine pustule, well marked in all its characters; but in other instances it has proved delusive, and only produced a spurious pustule. It is therefore incumbent on every medical man to shun this rock, on which so many have already split.

11. No preparation is necessary for vaccine inoculation; nor any medicine, in general, either during the course of the disease, if disease it may be called, or after. Should any other complaint occur, it ought to be treated in the same manner as it would have been had not vaccine inoculation been instituted. No cathartics ought to be given at the decline of the disease; for they will only serve to debilitate the patient, and are not indicated by the nature of the vaccine affection. No alteration of diet is requisite, unless temporary fever, diarrhoea, constipation, or other accidental symptom, should arise.

12. Particular care should be taken not to rupture the vesicle, either by washing the arm, or any other kind of friction; by tight clothes, or any other cause whatever. Should the vesicle be broken, in spite of all our precautions, the same care is requisite in the treatment of the sore as if it proceeded from variolous inoculation or any other cause. If the ulceration be superficial, saturnine applications are commonly sufficient. In some instances the emplastrum resinæ spread on linen effects a cure; in others, a poultice of bread and milk, with lard, is necessary. It ought to be laid down as a rule, that the local disease, which is in general the only disease to be attended to in this practice, should never be slighted.

CHAP. XI. OF THE CONSEQUENCES ARISING FROM SHARP-POINTED METALLIC SUBSTANCES TAKEN INTO THE STOMACH.

IN the course of this work a variety of instances occur in which mischievous effects have been produced by the swallowing of foreign bodies, either accidentally, or under a supposition that no evil would arise from the practice. We have not failed to record, in the casual instances alluded to, whatever practical hints seemed deserving of attention; but we have thought it our duty on such occasions to mark, in terms of adequate reprobation, the ignorant practice of swallowing cherry stones, damascene stones, &c. which some do even under an idea that they *contribute to digestion*. Children, following this pernicious example in their elders, or induced by mere wantonness and bravado, fall into the same practices. *Swallowing pins* is also still more common to children, and perhaps arising from the example of those mothers whom they see in the habit of putting pins, for convenience, into their mouths. To lay down any precise rule for the guidance of the practitioner in such cases is, perhaps, impossible, as the treatment must depend on the nature and circumstances of the accident. When foreign bodies are fairly passed into the stomach, the probability of their being brought up again is very little, and the attempt perhaps unadvisable, on other accounts. To hasten their descent may be equally hazardous and inexpedient; and, on these accounts, in many such accidents we are obliged to trust to nature, who, happily for the human kind, has resources, in such cases, which cannot but excite our wonder and astonishment. Thus, needles, and other small sharp-pointed bodies, passed into the stomach, or even penetrating the surface from without, have travelled all over the body unknown to the patient, and presented themselves at some unexpected part; from whence, by a slight surgical operation, they have been removed. We shall select a few cases, from which, possibly, some useful hints may be derived: at least the ingenious idea of dissolving metallic substances in the stomach seems well worth imitating in similar instances. A case of iron nails dissolved in the human stomach, by means of the nitric acid, without any bad consequences, is related in the Memoirs of the Medical Society of London, by Dr. Harrison.

CASE I.—“George Hall, aged about twenty-three years, complains of pricking pains in his stomach, which hurt him upon motion, and especially on bending or stooping forward. In an erect posture he is pretty easy; but walking upon a pavement, or on a hard uneven road, gives him great uneasiness. Yesterday, May the 5th, he incautiously swallowed two nails, and a considerable portion of another. To these he imputes the complaint at his stomach. From his description, they are made of cast

iron, are about an inch in length, and have large heads and very sharp points. One, it appears, stuck in the œsophagus, and was forcibly thrust into his stomach by the probang. This operation, which was performed immediately after the accident, gave him great pain, and was followed by a vomiting of coagulated blood. He has not been sick since yesterday—has had a natural stool to-day. In other respects he enjoys a good state of health.

(No. 60.) *R. Acid. nitros.* ʒi.*

Aquæ font. ʒj. m.

Capiat ʒij. statim ex aquæ puræ cochl. j. amplo.

"In a few minutes after taking the acid, he felt a slight griping in the stomach, which left him without sickness, after two or three eructations of wind.

(No. 61.) *Capiat ʒij. m. ex aquæ calidæ ʒj. sed prius adde tinct. opii gutt. x.*

Repetatur dosis istiusmodi sexies de die et nocte.

"Tuesday, May 6, 1794. According to my desire, he has confined himself to a light farinaceous diet, and feels pretty easy at his stomach. He has taken the medicine regularly, and it occasions neither pain nor sickness. Pulse, belly, and urine, regular.—Let the dose of nitric acid be gradually and cautiously increased, till it occasion some inconvenience. Continue the tincture of opium.

(No. 62.) *R. Elect. e fenn. ʒij.*

Pulv. jalap. ʒß.

M. f. Elect. de quo glutiat quantitatem nucis moschatæ mane, si alvus astricta sit, et pro re nata, repetatur portio idonea.

"Thursday, May 8. On this day in the afternoon he increased his dose from 120 to 130 drops. In a few minutes afterwards he fell down in a fit, which was attended with convulsions, and an abolition of sense, for nearly an hour. Since then he has only taken 120 drops. They give him no uneasiness or pain. Yesterday and to-day the drops have occasioned only a small eructation of wind. Before Thursday he never took them without belching air several times. Upon recovering from his fit, he declared that a nail had escaped from his stomach, and that he was sensible of its progressive motion towards the anus. Yesterday he felt a great deal of pain in the lower part of his body, for several hours, which went away on his voiding one of the nails by stool. It is very rough and uneven, with several deep holes in various places. The point, with about one-sixth of an inch from the small end, is quite consumed, and the head is also much wasted. His stomach is now very easy, and he feels none of the

* The specific gravity of the acid of nitre given of by Dr. Harrison was 1.35.

pricking pains that were formerly so troublesome upon the slightest motion.

" May 10. Since Saturday afternoon he has not been troubled with wind after taking the nitric acid, nor has he felt the smallest pricking in his stomach. In proportion as these symptoms disappeared the acid has produced more powerful effects. The third dose on Sunday was followed by such a violent and continual hiccough, that he could get little sleep or rest, and was obliged to walk about the greatest part of the night. Yesterday he was much easier, and to-day there is still less of the hiccough. He has discontinued the acid since Sunday at noon, and is desired not to take any more, without further orders. His appetite is unimpaired, but he has not indulged much in solid diet. Pulse, body, and urine, natural.

(No. 63.) *Capiat gutt. x. tinct. opii puri ex quovis vehiculo idoneo ter, quater, vel sæpius, si sit necesse de die et nocte.*

" May 13. His hiccough is entirely gone; he thinks himself quite recovered, and has been at work several days.

" May 20. Though the greatest attention has been paid to his feces since the accident, he has not discovered any appearance of the other nail; nor has he felt the smallest uneasiness in his stomach or bowels from the time that the hiccough left him.

" June 30. He has enjoyed an uninterrupted state of good health ever since the last report. Nothing has been seen of the nail, nor has he felt any uneasiness from it.

" May 5, 1795."

The whole quantity of diluted nitric acid taken by the patient was as follows:—

On Tuesday, ʒvij. at four times.

Wednesday, ʒiʒ. at six doses.

Thursday, ʒiʒ. and twenty drops, at ditto.

Friday, ditto ditto, ditto.

Saturday, ditto ditto, ditto.

Sunday, ʒvj. at three doses.

In all he swallowed of it seven ounces, five drachms, and twenty drops.

" When I was consulted in the case of George Hall," says Dr. Harrison, " I found myself much at a loss for a method of treatment that promised to be successful, without injuring the stomach or some other part of the alimentary tube. The size and pointed form of the nails deterred me from every attempt to remove them by vomits, or purgative medicines. To increase or disturb the actions of the first passages seemed to me extremely dangerous, so long as these foreign bodies were lodged any-where in the stomach or intestinal canal. For, on a careful examina-

tion of similar nails, it appeared to me, that their sharp points were more likely to be forced into the coats of these delicate organs, than expelled from them by violent means. Every endeavour of this kind therefore appeared to be attended with so much uncertainty and danger, that I was discouraged from the trial; nor did I expect more success from oily and mucilaginous medicines. It occurred to me that a cure might be undertaken by chemical agents, with less hazard to the patient, and greater prospect of success, than by any other remedies. Impressed with this idea, I made choice of the nitric acid for the purpose; and, from the result of this experiment, I am inclined to recommend it, in similar cases, to the attention of medical practitioners. Experience has proved, that diluted nitric acid may be taken into the stomach, and repeated in certain doses, without any detriment to the human frame; but I was of opinion, that here it might be administered in greater quantities, because I conceived that its proper action as an acid would be restrained and altered by its chemical union with the particles of iron in the patient's stomach. And in this I am inclined to believe my opinion was well founded; for during the first three days the medicine never produced any violent symptoms. Eructations of an elastic fluid were the only consequence; and this I assume as a strong proof that a combination was then forming in the stomach, between the acid and nails. For whenever these substances are mixed together out of the body, a separation of nitrous, and perhaps of azotic gas, never fails to take place, which continues to be extricated so long as they act upon each other. In this manner I conclude the copious eructations were produced on exhibiting the solvent, till, by taking an increased quantity, he became afflicted with convulsions, and, in this state, protruded the fragment of one nail into the intestines. From this period, the evolution of air was less considerable, and the effects of the acid more powerful. This may be collected from the reports, and affords another argument that the acid actually combined with the iron; for it is an established fact, that the operation of acid bodies is weakened by the chemical union. In confirmation of this opinion, I might adduce many compound salts in the *materia medica*; but the fact is so well established, that I think it unnecessary to enter further into the subject. But probably the great diminution of bulk in the nail that was voided, and the patient's having felt no subsequent uneasiness, will appear to afford the most complete evidence that the other nail was dissolved in the stomach. Such a combination, according to the laws of chemistry, necessarily involves the complete loss of aggregation in the nail, and the production of a new compound.

“That nitrated iron would be the result of the operation, struck me forcibly, when I first determined on this mode of

treatment, and increased my embarrassment; for, as I was unacquainted with the operation of this substance on the nerves of the stomach, I was afraid it might be attended with pernicious consequences. To guard against these, I administered the dose myself, and charged the patient to apply to me for directions, provided he afterwards experienced any violent or new symptom from taking the mixture. With these cautions, which were repeated at every subsequent visit, I was obliged, from his residence in the country, to confide to himself the immediate management of his case; and he, anxious to obtain a speedy cure, continued the usual quantity after the hiccough had supervened; and, from my permitting him at a former period to increase the nitric acid in a gradual manner, he imprudently ventured to take ten additional drops of it at the next dose.

“ To this inattention I impute the epileptic paroxysm, and also the singultus under which he laboured several days after the acid had been discontinued, and the original complaint removed. Had he been more cautious, I flatter myself that a cure would have been obtained, without the occurrence of any unpleasant symptom.

“ Iron has a disposition to unite with most acids; and therefore, it may appear a little extraordinary that I should prefer the nitric acid before some others, that are known to produce harmless combinations with this metal. The vitriolic acid has the most powerful attraction for iron, and forms with it a substance well known in medicine and the arts; but this compound, instead of diffusing itself speedily through the incumbent fluid, and thereby giving an opportunity for the action of fresh particles of the acid, rests upon the iron like a crust or film, and thus defends it, in a great measure, from the further action of solvents. I believe the nitric will be found to act more briskly upon iron than any other acid, and to constitute with it a saline compound, that has a greater disposition to diffuse itself through the surrounding vehicle, than any other preparation of this metal. A few comparative trials lately instituted with different acids confirm this opinion, and encourage me to give it a decided preference on similar occasions. But, as these experiments are not yet ready for publication, they shall be made the subject of another essay.

“ For these reasons I was induced to prefer the nitric acid to every other solvent, and the event of this trial seems to justify my choice; and as my only intention in relating this case was a desire to be useful, I submit the statement to an indulgent public, in the hope that it may prove serviceable to others.

“ Practical writers have recorded numerous instances of metallic bodies being swallowed, and occasioning to the sufferers no small degree of uneasiness and alarm. To be enabled to moderate

them on rational grounds, must afford the highest gratification to a benevolent physician; and if the practice recommended in this paper be found to succeed on further trial, it may encourage an attempt to remove other offending matters, by the operation of chemical agents. Pins, needles, &c. and coins of gold, silver, and copper, of various sizes, have often remained in the stomach for a great length of time; and, in some instances, their retention has occasioned very distressing symptoms, terminating in fatal consequences. In such cases, I perceive no objection to a prudent endeavour being made to dissolve any of them, when their removal cannot be safely confided to other medicines, or when the trial has not been productive of the wished-for relief.

"When we resolve to administer an acid with this intention, we must be determined in our choice by the nature of the metallic matter. For the attraction between acids and metals presents such a variety of interesting particulars, that to enumerate them here would seduce me beyond the limits of a single essay, and lead to an enquiry, which I conceive does not properly belong to a medical dissertation."

The following case, shewing the effect of *Pins swallowed*, which appears in the Medical and Physical Journal, was communicated by Mr. Adams, of Rochester.

CASE II.—"A girl, fourteen years old, was suddenly seized with such violent spasms about the larynx, the sides of the chest, and the diaphragm, that it was feared she would soon expire. So quick was the recurrence of those spasms, that she could neither eat nor drink. She complained of a ball ascending from the stomach into the throat, and there exciting the spasms.

"Her breathing was difficult, short, and attended with a hissing. Her countenance was flushed. Her eyes were swollen; and the tunica conjunctiva was somewhat inflamed. Her languor and disinclination to move were extreme. She had an aversion to food of all sorts, and even to drink. Her body was rather costive.

"She spat a mucus of a bluish green colour, which tasted, she said, very disagreeably; but she could not be made to compare the taste to any other. The spitting was somewhat profuse. She never slept for many days and nights; and there was also a slight cough.

"I ordered an enema, gave her kali saturated with lemon juice, and the camphor mixture, with T. Foetida, and applied a large blister to the pit of the stomach. These medicines procured no relief. I then gave pills, with camphor and opium, and applied a plaster of opiate confection to the larynx. All seemed in vain, the girl grew weaker and weaker, and death seemed to approach by rapid strides.

"I then requested the opinion of Dr. Vaughan on so singular a case. As there was once an inclination to vomit, it was

encouraged; but without any good effect. To obviate costiveness, induced by the opium, the powder of scammony, with calomel, was given; and forty drops of tincture of opium after its operation. Every enquiry as to the rise of the disease was made of the girl and her friends, but for a long time nothing to direct us could be detected in their answers.

"At length, considering particularly the mucus discharged so constantly, the girl was asked, if she could recollect having swallowed any thing uncommon?—To which she answered; that six months ago, as nearly as she could guess, she swallowed two pins: but she did not think them the cause of her complaint, as she had never felt any pain or inconvenience from them. She added further, that she was certain they had passed from her by stool, as she had felt them pricking the anus.

"It was concluded, that the mucus owed its green colour to the pins, and that they, or one of them, had not been voided.

"A vomit was in consequence given again; and, strange to tell, the two pins were discharged by the mouth: corroded indeed, but in the proper form, and only bent to almost a right angle."

In the Memoirs of the Medical Society of London we have the case of a young lady, who swallowed a knife, without its being attended with any disagreeable consequences. The case is related by Mr. Wheeler.

CASE III.—A young lady, about nine years of age, being at play with a small knife in her mouth, accidentally swallowed it.

The knife, when clasped, measured in length more than two inches, and in breadth above half an inch, and yet passed the œsophagus almost insensibly; so much so, that the attendants were doubtful of its being swallowed, till they had made every search for it to no purpose.

"Her friends being much alarmed," says Mr. Wheeler, "I was sent for immediately, and found my young patient entirely free from pain or apprehension.

"Though her situation appeared to me to be attended with some danger, I endeavoured to alleviate the anxiety of her friends, and recommending all possible attention to be used in search of the knife, prescribed a cooling regimen, with the use of laxative oleaginous medicines. In other respects trusting the expulsion to nature.

"This method produced two stools daily, and yet three days elapsed without any discovery being made; but on the morning of the fourth day the knife was voided by stool, with as little pain as it had been swallowed: the young lady continued perfectly easy, as well during the passage of the knife as afterwards.

"Soon after the above, I was informed of a school-boy having swallowed a small brass padlock; ashamed of the circumstance,

he did not mention it till some time after the accident, and in this interval it was probably voided by stool. On enquiry, he has since assured me, that neither pain nor any other inconvenience attended the swallowing it, but from that time to the present he has enjoyed a perfect state of health."

This case shews the possibility, at least, of very irregular bodies passing the intestinal canal without producing any disagreeable effects. When such happen to be detained, however, it must be desirable to effect their solution by the means recommended by Dr. Harrison; and the question that occurs for the practitioner's consideration, is, whether, at all events, and in the *first instance*, the acid should not be resorted to; as the probability of expulsion by the natural efforts will not be lessened by pursuing that course.

THE END.

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A TABLE OF THE PROPORTIONS OF MERCURY AND OPIUM IN THE
DIFFERENT COMPOSITIONS IN THE LONDON AND EDINBURGH PHAR-
MACOPOEIAS.

		IN	CONTAINS
Balf. anodyn.	<i>Edinb.</i>	grs. 30	Opii gr. 1.
Confect. opiata	<i>Lond.</i>	grs. 36	Opii gr. 1.
Elect. japonic.	<i>Edinb.</i>	grs. 193	Opii gr. 1.
Elect. thebaic.	<i>Edinb.</i>	grs. 97	Opii gr. 1.
Elix. paregoric.	<i>Edinb.</i>	grs. 68	Opii gr. 1.
Emplast. amoniac.	} <i>Lond.</i>	35	Hydrag. 31.
cum hydrarg.			
Emplast. litharg.	} <i>Lond.</i>	35	Hydrag. 31.
cum hydrarg.			
Emplast. ex hydrarg.	<i>Edinb.</i>	33 $\frac{2}{3}$	Hydrag. 31.
Pilul. ex hydrarg.	<i>Lond.</i>	grs. 2 $\frac{1}{2}$	Hydrag. gr. 1.
Pilul. ex hydrarg.	<i>Edinb.</i>	grs. 4	Hydrag. gr. 1.
Pilul. ex opio	<i>Lond.</i>	grs. 5	Opii gr. 1.
Pilul. Plummer.	<i>Edinb.</i>	grs. 2 $\frac{2}{3}$	Calomel. gr. 1.
Pilul. thebaic.	<i>Edinb.</i>	grs. 10	Opii gr. 1.
Pulv. e creta comp.	} <i>Lond.</i>	grs. 44	Opii gr. 1.
cum opio			
Pulv. e scamon. cum	} <i>Lond.</i>	grs. 4	Calomel. gr. 1.
calomel.			
Pulv. ipecac. comp.	<i>Lond.</i>	grs. 10	Opii gr. 1.
Pulv. opiat.	<i>Lond.</i>	grs. 10	Opii gr. 1.
Pulv. sudorific.	<i>Edinb.</i>	grs. 11	Opii gr. 1.
Tinct. opii	<i>Lond.</i>	grs. 13	Opii gr. 1.
Tinct. opii camph.	<i>Lond.</i>	grs. 260	Opii gr. 1.
Tinct. thebaic.	<i>Edinb.</i>	grs. 12	Opii gr. 1.
Trochisc* Bechic. c. op.	<i>Edinb.</i>	grs. 55	Opii gr. 1.
Ung. calc. hydrarg. alb.	<i>Edinb.</i>	31	Calc. hydrarg. alb. grs. 4 $\frac{2}{3}$.
Ung. citrinum	<i>Edinb.</i>	31	Hydrag. nitrat. grs. 4.
Ung. ex hydrarg.	<i>Edinb.</i>	35	Hydrag. 31.
Ung. hydrarg. fort.	<i>Lond.</i>	32	Hydrag. 31.
Ung. hydrarg. mit.	<i>Lond.</i>	35	Hydrag. 31.
Ung. hydrarg. nitrat.	<i>Lond.</i>	31	Hydrag. nitrat. grs. 4.

* These troches are not unfrequently ordered with double the quantity of opium, and kept in the shops under that form.

A

GENERAL POSOLOGICAL TABLE,

A.

Acetum Scillæ
Acidum muriaticum
 — vitriolicum dilutum
Æther vitriolicus
Aloe socotrina
Alumen
Ammonia præparata
Ammoniacum
Antimonium
 — calcinatum
 — tartarificatum
 — vitrificatum
Aqua ammoniæ
 — acetatæ
 — anethi
 — calcis
 — cinnamomi
 — fœniculi
 — kali
 — puri
 — menthæ piperitidis
Aqua pimento
 — pulegii
 — Rosæ
Arabicum Gummi
Asafœtida

Vinegar of Squills
Muriatic Acid
Diluted Vitriolic Acid
Vitriolic Æther
Socotrine Aloes
Alum
Prepared Ammonia
Gum Ammoniacum
Crude Antimony
Calcined Antimony
Tartarified Antimony
Vitrified Antimony
Water of Ammonia
Water of acetated Ammonia
Dill-seed Water
Lime Water
Cinnamon Water
Fennel Water
Water of prepared Kali
Water of pure Kali
Peppermint Water
Pimento Water
Pennyroyal Water
Rose Water
Gum Arabic

DOSES.

gtt. 10 ad gtt. 50.
 gtt. 15...gtt. 40.
 gtt. 10...gtt. 30.
 gtt. 10...gtt. 100
 gr. 15...scr. 1.
 gr. 6...gr. 12.
 gr. 5...scr. 1.
 gr. 10...gr. 15.
 scr. 1...dr. 1.
 gr. 15...scr. 2.
 gr. 1...gr. 6.
 gr. 2...gr. 10.
 gtt. 10...gtt. 30.
 dr. 2...dr. 6.
 un. 1...un. 2.
 un. 4...lb. $\frac{1}{2}$.
 un. 2...un. 4.
 un. 2...un. 4.
 gtt. 20...gtt. 30.
 gtt. 10...gtt. 30.
 un. 2...un. 4.
 un. 2...un. 4.
 un. 2...un. 4.
 ad libitum.
 dr. 1...dr. 2.
 gr. 10...scr. 2.

B.

Balsamum Canadense
 — copaivæ
 — peruvianum
 — toluatanum

Canada Balsam
Balsam of Copaiuva
Balsam of Peru
Balsam of Tolu

gr. 15...gr. 30.
 gtt. 20...gtt. 40.
 gr. 6...gr. 25.
 scr. 1...dr. 1.

C.

Calomelas
Camphora
Cantharis
Cardamomum
Cascarilla
Castoreum
Catechu
Chamœmelum
Cicuta
Cinchona
Columba

Calomel
Camphor
Cantharides
Cardamom seeds
Cascarilla Bark
Castor
Catechu
Camomile
Hemlock
Peruvian Bark

gr. 3...gr. 10.
 gr. 3...scr. 1.
 gr. 4...gr. 4.
 gr. 5...gr. 10.
 scr. $\frac{1}{2}$...dr. 1.
 gr. 3...scr. 1.
 gr. 15...scr. 2.
 scr. $\frac{1}{2}$...dr. 1.
 gr. 5...scr. 1.
 scr. 1...dr. 2.
 gr. 10...scr. 1.

GENERAL PHOSOLOGICAL TABLE.

		DOSES.
Confectio aromatica	<i>Aromatic Confection</i>	gr. 15. . scr. 2.
— opiata	<i>Confection of Opium</i>	gr. 5. . scr. 1.
Conserva abinthii maritimi	<i>Conserve of Sea Wormwood</i>	dr. 2. . un. 1.
— ari	<i>Conserve of Cuckowpint</i>	scr. 1. . dr. 1.
— corticis aurantii	<i>Conserve of Orange Peel</i>	ad libitum.
— cynosbati	<i>Conserve of Hps</i>	ad libitum.
Conserva lujulæ	<i>Conserve of Woodforrel</i>	dr. 4. . un. 1.
— pruni fylvestris	<i>Conserve of Sloes</i>	dr. 1. . dr. 3.
— rosæ rubræ	<i>Conserve of Red Rises</i>	dr. 2. . un. 1.
— foillæ	<i>Conserve of Squills</i>	scr. 1. . dr. 1.
Contrayerva		gr. 10. . dr. 1.
Coriandrum	<i>Coriander Seeds</i>	scr. 1. . dr. 1.
Cornu cervi ustum	<i>Burnt Hartshorn</i>	dr. 1. . dr. 2.
Creta	<i>Chalk</i>	gr. 15. . scr. 1.

D.

Decoctum cinchonæ	<i>Decoction of Peruvian Bark</i>	un. 2. . un.
— cornu cervi	<i>Decoction of Hartshorn</i>	un. 4. . lb. 1.
— hordei	<i>Simple Decoction of Barley</i>	un. 4. . lb. 1.
— — compositum	<i>Compound Decoction of Barley</i>	un. 4. . lb. 1.
— sarsaparillæ	<i>Simple Decoction of Sarsaparilla</i>	un. 4. . lb. 1.
— — compositum	<i>Compound Decoction of Sarsaparilla</i>	un. 4. . lb. 1.
— ulmi	<i>Decoction of Elm Bark</i>	un. 4. . lb. 1.
Digitalis	<i>Fox-glove</i>	gr. 1. . gr. 2.

E.

Elasterium	<i>Theinflatted juice of the Wild Cucumber</i>	gr. 1. . gr. 3
Electuarium cassiæ	<i>Electuary of Cassia</i>	dr. 1. . dr. 6
— — scammonii	<i>Electuary of Scammony</i>	scr. 1. . dr. 1
— — sennæ	<i>Electuary of Senna</i>	dr. 1. . dr. 4
Extractum cacuminis genistæ	<i>Extract of Broom Tops</i>	scr. 1. . dr. 1
— — cascarillæ	<i>Extract of Cascarilla</i>	gr. 10. . scr. 1
— — chamemeli	<i>Extract of Chamemile</i>	gr. 10. . scr. 2
— — cinchonæ	<i>Extract of Peruvian Bark</i>	gr. 10. . scr. 1.
— — cum resinâ	<i>Extract of Bark with the Resin</i>	gr. 10. . scr. 1.
— — colocynthidis compositum	<i>Compound Extract of Bitter Apple</i>	gr. 5. . gr. 25
— — gentianæ	<i>Extract of Gentian</i>	gr. 10. . scr. 1
— — glycyrrhizæ	<i>Extract of Liqueurice</i>	dr. 1. . dr. 4
— — hæmatoxyli	<i>Extract of Logwood</i>	gr. 10. . gr. 2
— — hellebori nigri	<i>Extract of Black Hellebore</i>	gr. 2. . gr. 10.
— — jalapii	<i>Extract of Jalap</i>	gr. 10. . scr. 1.
— — papaveris albi	<i>Extract of White Poppies</i>	gr. 1. . gr. 5.
— — rutæ	<i>Extract of Rue</i>	gr. 10. . scr. 1.
— — sabina	<i>Extract of Savin</i>	gr. 10. . dr. 1.
— — sennæ	<i>Extract of Senna</i>	gr. 10. . scr. 1.

F.

Ferri rubigo	<i>Rust of Iron</i>	gr. 6. . scr. 1.
Ferrum ammoniacale	<i>Ammoniacal Iron</i>	gr. 2. . gr. 10.
— tartarizatum	<i>Tartarized Iron</i>	gr. 2. . gr. 10.
— vitriolatum	<i>Vitriolated Iron</i>	gr. 1. . gr. 6.
Filix	<i>Male Fern Root</i>	scr. 1. . un. 1.
Flores benzoes	<i>Flowers of Benjamin</i>	gr. 10. . scr. 1.
— sulphuris	<i>Flowers of Sulphur</i>	scr. 1. . scr. 1.

G.

Gambogia	<i>Gamboge</i>	gr. 2. . gr. 12.
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GENERAL POSOLOGICAL TABLE.

		DOSES.
Geniſſa	<i>Broom Top</i>	ſcr. 1. . dr. 1.
Gentiana	<i>Gentian</i>	gr. 10. . dr. 1.
Ginfeng		gr. 10. . dr. 1.
Glycyrrhiza	<i>Liquorice Root</i>	dr. 4. . dr. 6.
Guaiacum		ſcr. 1½. . dr. 1.
Gummi refinæ	<i>Gum refinæ</i>	gr. 6. . ſcr. 1½.

H.

Hæmatoxylum	<i>Logwood</i>	gr. 10. . dr. 1.
Helleborus niger	<i>Black Hellebore</i>	gr. 1. . gr. 5.
Hydrargyruſ	<i>Quickſilver</i>	un. ½. . un. 4.
_____ acetatuſ	<i>Acetated Quickſilver</i>	gr. 1. . gr. 10.
_____ calcinatuſ	<i>Calcined Quickſilver</i>	gr. ½. . gr. 1.
_____ cum cretâ	<i>Quickſilver with Chalk</i>	gr. 5. . ſcr. 1.
_____ muriatuſ	<i>Muriated Quickſilver</i>	gr. 1. . gr. ½.
_____ cum ſulphure	<i>Sulphurated Quickſilver</i>	ſcr. 1. . dr. 1.
_____ ſulphuratuſ ruber	<i>Red ſulphurated Quickſilver</i>	gr. 10. . ſcr. 1½.
_____ vitriolatuſ	<i>Vitriolated Quickſilver</i>	gr. ½. . gr. 4.

I.

Infuſum gentianæ compoſitum	<i>Compound Infuſion of Gentian</i>	un. 2. . un. 4.
_____ roſæ	<i>Infuſion of Roſes</i>	un. 2. . lb. ½.
_____ ſennæ	<i>Simple Infuſion of Senna</i>	un. 2. . un. 4.
Infuſum ſennæ tartariſatum	<i>Tartariſed Infuſion of Senna</i>	un. 2. . un. 4.
Ipecacuanha		gr. 10. . ſcr. 1.
Iris	<i>Florentine Orris</i>	ſcr. 1. . dr. 1.

J.

Jalapium	<i>Jalap</i>	gr. 7. . ſcr. ½.
Juniperuſ	<i>Juniper Berries</i>	ſcr. 1. . dr. 1.

K.

Kino		gr. 10. . ſcr. 1½.
Kali præparatum	<i>Prepared Kali</i>	gr. 8. . ſcr. 1.
_____ acetatum	<i>Acetated Kali</i>	ſcr. 1. . dr. 1.
_____ tartariſatum	<i>Tartariſed Kali</i>	dr. 2. . dr. 6.
_____ vitriolatum	<i>Vitriolated Kali</i>	dr. 2. . dr. 6.

L.

Lac ammoniaci	<i>Milk of Ammoniacum</i>	dr. 7. . un. 1.
_____ amygdalæ	<i>Milk of Almonds</i>	un. 2. . un. 6.
Liquor volatiliſ cornu cervi	<i>Volatile Liquor of Hartſhorn</i>	ſcr. 1½. . dr. 2.

M.

Magnetiæ alba	<i>White Magnetiæ</i>	ſcr. 1. . dr. 2.
_____ uſta	<i>Burnt Magnetiæ</i>	ſcr. 1½. . dr. 1.
_____ vitriolata	<i>Vitriolated Magnetiæ</i>	dr. 2. . dr. 6.
Manna		un. ½. . un. 2.
Mel acetatum	<i>Acetated Honey</i>	dr. 1. . dr. 2.
_____ roſæ	<i>Roſe Honey</i>	dr. 1. . dr. 2.
_____ ſcillæ	<i>Squill Honey</i>	ſcr. 1½. . dr. 2.
Millepeda	<i>Woodlice</i>	dr. 1. . dr. 3.
Miſtura camphorata	<i>Camphorated Mixture</i>	un. 2. . un. 4.
_____ cretacea	<i>Chalk Mixture</i>	un. 2. . un. 4.

GENERAL PHARMACOLOGICAL TABLE.

		DOSES.
Mistura moschata	<i>Musk Mixture</i>	dr. 4. un. 2
Mucilago amyli	<i>Mucilage of Starch</i>	dr. 1. un. 1
———— arabici gummi	<i>Mucilage of Gum Arabic</i>	dr. 1. un. 1
———— seminis cydonii mali	<i>Mucilage of Quince-seed</i>	dr. 1. un. 1
———— tragacantha	<i>Mucilage of Tragacanth</i>	dr. 1. un. 1
Myrrha	<i>Myrrh</i>	gr. 10. scr. 1½

N.

Natron præparatum	<i>Prepared Natron</i>	gr. 10. scr. 1½
———— tartarifatum	<i>Tartarised Natron</i>	dr. 4. un. 1
———— vitriolatum	<i>Vitriolated Natron</i>	dr. 6. un. 1
Nitrum purificatum	<i>Purified Nitre</i>	gr. 5. scr. 1

O.

Olum amygdalæ	<i>Oil of Almonds</i>	dr. 4. un. 1
———— juniperi baccae	<i>Oil of Juniper-berries</i>	gtt. 2. gtt. 10.
———— lavendulæ	<i>Oil of Lavender</i>	gtt. 2. gtt. 5.
———— lini	<i>Oil of Linseed</i>	dr. 4. un. 1
———— olivæ	<i>Oil of Olives</i>	dr. 4. un. 1
———— ricini	<i>Castor Oil</i>	dr. 2. un. 1
———— sinapeos	<i>Oil of Mustard</i>	dr. 4. un. 1
Opium purificatum	<i>Purified Opium</i>	gr. ½. gr. 2.
Ostreorum testæ	<i>Oyster-shells</i>	scr. 1. dr. 1½
Oxymel colchici	<i>Oxymel Colchici</i>	scr. 1. scr. 1½
———— scillæ	<i>Oxymel of Squills</i>	scr. 1½. dr. 1.

P.

Pilula aloes composita	<i>Compound Pills of Aloes</i>	gr. 10. scr. 1.
———— cum Myrrha	<i>Pills of Aloes with Myrrh</i>	gr. 6. gr. 18.
———— galbani composita	<i>Compound Galbanum Pills</i>	gr. 10. scr. 1½
———— hydrargyri	<i>Quicksilver Pills</i>	gr. 6. scr. 1.
———— opii	<i>Opium Pills</i>	gr. 2. gr. 8.
———— scillæ	<i>Squill Pills</i>	gr. 10. scr. 1.
Pimento	<i>All-spice</i>	gr. 5. scr. 1.
Pulvis aloes cum canellâ	<i>Aloetic Powder with canella</i>	gr. 10. scr. 1.
———— cum ferro	<i>Aloetic Powder with Iron</i>	gr. 8. gr. 18.
———— cum guaiaco	<i>Aloetic Powder with Guaiacum</i>	gr. 10. scr. 1.
———— antimonialis	<i>Antimonial Powder</i>	gr. 3. gr. 6.
———— aromaticus	<i>Aromatic Powder</i>	gr. 5. scr. 1.
———— e chelis cancerorum compositus	<i>Compound Powder of Crab's Claw</i>	scr. 1½. dr. 1.
———— contrayervæ compositus	<i>Compound Powder of Contrayerva</i>	gr. 15. scr. 1½
———— cretæ compositus	<i>Compound Powder of Chalk</i>	gr. 10. scr. 1.
———— compositus cum opio	<i>Compound Powder of Chalk with Opium</i>	gr. 10. scr. 2.
———— ipecacuanhæ compositus	<i>Compound Powder of Ipecacuanha</i>	gr. 18. scr. 1½
———— Myrrhæ compositus	<i>Compound Powder of Myrrh</i>	gr. 15. scr. 1½
———— opiatum	<i>Opium Powder</i>	gr. 5. scr. 1.
———— scammonii	<i>Compound Powder of Scammony</i>	gr. 10. scr. 1.
———— compositus cum aloë	<i>Powder of Scammony with aloes</i>	gr. 5. gr. 10.
Pulvis scammonii cum calomelane	<i>Powder of Scammony with Calomel</i>	gr. 8. gr. 16.
———— sennæ compositus	<i>Compound Powder of Senna</i>	scr. 1. scr. 2.
———— tragacanthæ compositus	<i>Compound Powder of Tragacanth</i>	scr. 1. dr. 1.
Pyrethrum	<i>Pellitory of Spain</i>	gr. 2. gr. 6.

Q.

Quassia	<i>Quassia Wood</i>	gr. 5. scr. 1.
Quercus	<i>Oak Bark</i>	gr. 6. scr. 1

GENERAL POSOLOGICAL TABLE.

	R.		DOSES.
Raphanus ruficranus	<i>Horse-radish</i>		scr. 1. . dr. 1.
Rhabarbarum	<i>Rhubarb</i>		gr. 15. . scr. 2.
Ruta	<i>Rue</i>		gr. 15. . scr. 2.
	S.		
Sal ammoniacus	<i>Sal Ammoniac</i>		gr. 8. . scr. 1.
— cornu cervi	<i>Salt of Hartshorn</i>		gr. 10. . scr. 1.
— succini purificatus	<i>Purified Salt of Amber</i>		gr. 5. . gr. 15.
Sapo	<i>Soup</i>		scr. 1 1/2. . dr. 4.
Sarsaparilla			scr. 1. . scr. 1 1/2.
Sassafras			scr. 1. . dr. 1.
Scammonium	<i>Scammony</i>		gr. 5. . scr. 1.
Scilla exsiccata	<i>Dried Squills</i>		gr. 1. . gr. 3.
— recens	<i>Fresh Squills</i>		gr. 5. . gr. 10.
Scordium	<i>Water-germander</i>		scr. 1. . dr. 1.
Seneca			scr. 1. . scr. 2.
Senna			scr. 1. . dr. 1.
Serpentaria			gr. 10. . scr. 2.
Simarouba	<i>Simarouba Bark</i>		gr. 10. . scr. 1 1/2.
Sinapi	<i>Mustard-seed</i>		dr. 1. . dr. 3.
Spermaceti			scr. 1. . dr. 1.
Spigelia	<i>Indian Pink</i>		gr. 10. . scr. 1.
Spina cervinæ	<i>Buckthorn</i>		scr. 1 1/2. . dr. 2.
Spiritus ætheris vitriolici	<i>Vitriolic Spirit of Æther</i>		gtt. 20. . gtt. 60.
— vitriolici compositus	<i>Compound Spirit of vitriolic Æther</i>		gtt. 20. . gtt. 60.
— nitrosi	<i>Nitrous Spirit of Æther</i>		gtt. 20. . gtt. 60.
— ammoniac	<i>Spirit of Ammonia</i>		scr. 1. . scr. 2.
— compositus	<i>Compound Spirit of Ammonia</i>		scr. 1 1/2. . dr. 1.
— fœtidus	<i>Fœtid Spirit of Ammonia</i>		scr. 1. . scr. 2.
— succinatus	<i>Succinated Spirit of Ammonia</i>		gr. 10. . scr. 1.
— unis compositus	<i>Compound Spirit of Aniseed</i>		dr. 1. . dr. 4.
— casui	<i>Spirit of Carraway</i>		dr. 1. . dr. 4.
— cinnamomi	<i>Spirit of Cinnamon</i>		dr. 1. . dr. 4.
— juniperi compositus	<i>Compound Spirit of Juniper</i>		dr. 1. . dr. 4.
— lavendulæ	<i>Spirit of Lavender</i>		dr. 1. . dr. 4.
— compositus	<i>Compound Spirit of Lavender</i>		scr. 1 1/2. . dr. 2.
— menthæ piperitidis	<i>Spirit of Peppermint</i>		dr. 1. . dr. 3.
— fativæ	<i>Spirit of Stearmin</i>		dr. 1. . dr. 4.
— nucis moschatæ	<i>Spirit of Nutmeg</i>		dr. 1. . dr. 4.
— pimento	<i>Spirit of Pimento</i>		dr. 1. . dr. 3.
— pulegii	<i>Spirit of Pennyroyal</i>		dr. 1. . dr. 3.
— raphani compositus	<i>Compound Spirit of Horse-radish</i>		dr. 1. . dr. 3.
Spongia usta	<i>Burnt Sponge</i>		scr. 1. . dr. 1.
Stanni pulvis	<i>Powder of Tin</i>		dr. 3. . dr. 6.
Styrax	<i>Styrax</i>		gr. 10. . scr. 1.
Succinum præparatum	<i>Prepared Amber</i>		scr. 1 1/2. . dr. 1.
Succus aconiti spissatus	<i>Infused Juice of Henbane</i>		gr. 1. . gr. 4.
— bacce sambuci spissatus	<i>Infused Juice of Elder-berry</i>		un. 2. . un. 2.
— cicutæ spissatus	<i>Infused Juice of Hemlock</i>		gr. 2. . gr. 10.
— cochleariæ compositus	<i>Compound Juice of Scoury-grass</i>		un. 2. . un. 6.
— ribis nigri	<i>Infused Juice of Black Currant</i>		un. 2. . un. 2.
Sulphur antimonii præcipitatum	<i>Precipitated Sulphur of Antimony</i>		gr. 2. . gr. 5.
— præcipitatum	<i>Precipitated Sulphur</i>		dr. 1. . dr. 2.
Syrupus althææ	<i>Syrup of Marsh-mallows</i>		dr. 1. . dr. 2.
— papaveris albi	<i>Syrup of White Poppies</i>		dr. 4. . un. 1.
— erratici	<i>Syrup of wild Poppy</i>		dr. 2. . dr. 4.
— rosæ	<i>Syrup of Roses</i>		dr. 2. . dr. 4.
— spinæ cervinæ	<i>Syrup of Buckthorn</i>		dr. 2. . dr. 4.
— violæ	<i>Syrup of Violets</i>		dr. 2. . dr. 4.
— zingiberis	<i>Syrup of Ginger</i>		dr. 2. . dr. 4.

GENERAL POSOLOGICAL TABLE.

T.

Tanacetum	
Tartari crystalli	
Tinctura aloës	
———— composita	
———— asæfoetidæ	
———— balsami peruviani	
Tinctura balsami tolutani	
———— benzoës composita	
———— cantharidis	
———— cardamomi	
———— composita	
———— calcarillæ	
———— castorei	
———— catechu	
———— cinchonæ	
———— composita	
———— ammoniata	
———— cinnamomi	
———— composita	
———— colombæ	
———— ferri ammoniacalis	
———— ferri muriati	
———— galbani	
———— gentianæ composita	
———— guaiaci ammoniata	
———— hellebori nigri	
———— jalapii	
———— myrrhæ	
———— opii	
———— camphorata	
———— rhubarbari	
———— composita	
———— fabinæ composita	
———— scillæ	
———— fennæ	
———— serpentariæ	
———— valerianæ	
———— ammoniata	
———— zingiberis	
Tormentilla	
Tragacantha	

Tansey	
Crystals of Tartar	
Tincture of Aloes	
Compound Tincture of Aloës	
Tincture of Asafœtida	
Tincture of Balsam of Peru	
Tincture of Balsam of Tolu	
Compound Tincture of Benzoe	
Tincture of the Spanish Fly	
Tincture of Cardamom	
Compound Tincture of Cardamom	
Tincture of Calcarilla	
Tincture of Castor	
Tincture of Catechu	
Tincture of Bark	
Compound Tincture of Bark	
Ammoniated Tincture of Bark	
Tincture of Cinnamon	
Compound Tincture of Cinnamon	
Tincture of Colomba	
Tincture of Ammoniacal Iron	
Tincture of Muriated Iron	
Tincture of Galbanum	
Compound Tincture of Gentian	
Ammoniated Tincture of Guaiacum	
Tincture of Black Hellebore	
Tincture of Jalap	
Tincture of Myrrh	
Tincture of Opium	
Camphorated Tincture of Opium	
Tincture of Rhubarb	
Compound Tincture of Rhubarb	
Compound Tincture of Sassa	
Tincture of Squills	
Tincture of Senna	
Tincture of Serpentaria	
Tincture of Valerian	
Ammoniated Tincture of Valerian	
Tincture of Ginger	
Tormentil Root	
Tragacanth	

DOSES.

scr. 1 1/2 . dr. 1.	
—dr. 2 . un. 1/2.	
dr. 4 . un. 1.	
scr. 1 1/2 . dr. 1.	
scr. 1 . dr. 2.	
scr. 1 1/2 . dr. 2.	
scr. 1 1/2 . dr. 2.	
dr. 1 . dr. 2.	
gr. 10 . dr. 1.	
dr. 1 . dr. 3.	
dr. 1 . dr. 3.	
dr. 1 . dr. 4.	
scr. 1 . dr. 1 1/2.	
dr. 2 . dr. 3.	
dr. 1 . dr. 3.	
dr. 1 . dr. 3.	
dr. 1 . dr. 4.	
scr. 1 1/2 . dr. 2.	
dr. 1 . dr. 3.	
dr. 1 . dr. 3.	
dr. 1 . dr. 3.	
dr. 1 . dr. 3.	
gtt. 10 . gtt. 60.	
dr. 1 . dr. 3.	
dr. 2 . dr. 3.	
dr. 1 . dr. 4.	
scr. 1 . dr. 1.	
dr. 1 . dr. 3.	
dr. 1 . dr. 3.	
gtt. 20 . gtt. 2.	
gtt. 30 . gtt. 60.	
dr. 4 . un. 2.	
dr. 4 . un. 2.	
gtt. 20 . gtt. 40.	
gtt. 20 . gtt. 60.	
dr. 2 . un. 1.	
dr. 1 . dr. 2.	
dr. 1 . dr. 3.	
scr. 1 . dr. 2.	
dr. 1 . dr. 2.	
gr. 10 . scr. 2.	
gr. 10 . dr. 1.	

U.

Valeriana	
Vinum aloes	
———— antimonii	
———— tartarifati	
———— ferri	
———— ipecacuanhæ	
———— rhubarbari	
Uva ursi	

Valerian	
Wine of Aloes	
Antimonial Wine	
Wine of Tartarified Antimony	
Wine of Iron.	
Ipecacuanha Wine	
Wine of Rhubarb	
Bear's Wortleberry	

scr. 1 . dr. 2.	
dr. 6 . un. 1.	
gtt. 20 . gtt. 50.	
gtt. 20 . dr. 50.	
dr. 1 . dr. 4.	
dr. 1 . dr. 4.	
dr. 4 . un. 2.	
scr. 1 . dr. 1.	

Z.

Zincum calcinatum	
———— vitriolatum purificatum	

Calined Zinc	
Purified Vitriolated Zinc	

gr. 3 . gr. 10.	
gr. 5 . scr. 1.	

TABLE OF THE NAMES

ALTERED IN THE LATER EDITIONS OF THE

PHARMACOPŒIAS

OF

LONDON AND EDINBURGH.

Old Names.

New Names.

A.

ACETUM scilliticum
Æthiops mirabilis
 Aqua aluminosa *Bateana*
 calcis simplex
 cinamomi simplex
 — spirituosā
 hordeata
 juniperi composita
 menthæ piperitidis simplex
 — spirituosā
 — vulgaris simplex
 — spirituosā
 nucis moschatæ
 piperis *Jamaicensis*
 pulegii simplex
 — spirituosā
 raphani composita
 rosarum *damaſcenarum*
 ſapphirinæ
 terminum anethi
 — anisi composita
 — carui
 vitriolica camphorata
 Argenti vivi purificatio
 Axungia porcina curatio

B.

Balfamum ſulphuris *Barbadenſe*
 — ſimplex
 traumaticum
 anodynum
 ſaponaceum
 Butyrum antimonii

ACETUM ſcillæ, *Lond.*
 Hydragryrus cum ſulphure, *Lond.*
 Aqua aluminis composita, *Lond.*
 calcis, *Lond.*
 cinainomi, *Lond.*
 Spiritus cinamomi, *Lond.*
 Decoctum hordei, *Lond.*
 Spirit. juniperi compositus, *Lond.*
 Aqua menthæ piperitidis, *Lond.*
 Spirit. menthæ piperitidis, *Lond.*
 Aqua menthæ ſativæ, *Lond.*
 Spiritus menthæ ſativæ, *Lond.*
 nucis moschatæ, *Lond.*
 Aqua pimento, *Lond.*
 pulegii, *Lond.*
 Spirit. pulegii, *Lond.*
 raphani compositus, *Lond.*
 Aqua roſæ, *Lond.*
 cupri ammoniati, *Lond.*
 anethi, *Lond.*
 Spiritus anisi compositus, *Lond.*
 carui, *Lond.*
 Aqua zinci vitriolati cum camphora, *Lond.*
 Hydragryri purificatio, *Lond.*
 Adipis ſcillæ præparatio, *Lond.*

Petroleum ſulphuratum, *Lond.*
 Oleum ſulphuratum, *Lond.*
 Tinct. Benzoeis composita, *Lond.*
 Linimentum anodynum, *Edinb.*
 ſaponaceum, *Edinb.*
 Caſticum antimoniale, *Edinb.*

Old Names.

New Names.

C.

Calx antimonii
Cauticum antimoniale
 commune fortius
 lunare —
Ceratum album
 citrinum
 epuloticum
Chalybis rubigo præparata
Cinabaris factitia
Confectio cardiaca —
Confectio japonica
Cornu cervi calcinato
Crocus metallorum

Antimonium calcinatum, *Lond.*
 muriatum, *Lond.*
Calx cum kali puro, *Lond.*
{ Argentum nitratum, *Lond.*
 Sal argenti, *Edinb.*
Ceratum spermatis ceti, *Lond.*
 resinæ flavæ, *Lond.*
 lapidis calaminaris, *Lond.*
Ferri rubigo, *Lond.*
Hydrarg. sulphuratus ruber, *Lond.*
{ Confectio aromatica, *Lond.*
 Electuarium cardiacum, *Edinb.*
 Electuarium japonicum, *Edinb.*
Cornu cervi usto, *Lond.*
Crocus antimonii, *Edinb.*

D.

Decoctum album
 commune pro clystere
 pectorale

Decoctum cornu cervi, *Lond.*
 pro enemate, *Lond.*
 hordei compositum, *Lond.*

E.

Electuarium lenitivum
Elixir aloës
 myrrhæ compositum
 paeoniacum
 proprietas
 sacrum
 salutis
Emplastrum ex ammoniaco cum mercurio

Electuarium e senna, *Lond.*
Tinctura aloës composita, *Lond.*
 sabinæ composita, *Lond.*
 opii camphorata, *Lond.*
Elixir aloës, *Edinb.*
 ex aloës et theo, *Edinb.*
Tinctura sennæ composita, *Edinb.*
Emplastrum ammoniaci cum hydrargyro,
 Lond.

☞, antihystericum
 attrahens
 cephalicum
 commune
 adhesivum
 cum gummi
 cum mercurio
 e cymino
 roborans
 e sapone
 stomachicum
 vesicatorium

foetidum, *Edinb.*
ceræ, *Lond.*
picis Burgundicæ, *Lond.*
lichargyri, *Lond.*
cum resina, *Lond.*
cum gummi, *Lond.*
cum hydrargyro, *Lond.*
cumini, *Lond.*
thuris, *Lond.*
saponis, *Lond.*
ladani, *Lond.*
cantharidis, *Lond.*

Emulsio communis
Ens veneris
Extractum catharticum
 thebaicum

Lac amygdalæ, *Lond.*
Flores martiales, *Edinb.*
Extractum e colocynthide compositum,
 Lond.
Opium purificatum, *Lond.*

F.

Ferri rubigo
Flores benzoïni

Ferri limatura præparata, *Edinb.*
Flores benzoës, *Lond.*

NEW PHARMACEUTICAL NOMENCLATURE.

Old Names.

New Names.

Flores martiales
zinci
Fotus communis

Ferrum ammoniacale, *Lond.*
Calx zinci, *Lond.*
Decoctum pro fomento, *Lond.*

H.

Hiera picra

Pulvis aloeticus, *Lond.*

I.

Infusum amarum simplex
fennæ communis
Julepum e camphora
e creta
e moscho

Infusum gentianæ compositum, *Lond.*
Iennæ tatarisatum, *Lond.*
Mistura camphorata, *Lond.*
cretacea, *Lond.*
mochata, *Lond.*

L.

Laudanum liquidum
Linimentum album
saponaceum
volatile
Lixivium saponaceum
tartari

{ Tinctura thebaica, *Edinb.*
opii, *Lond.*
Unguentum spermatis ceti, *Lond.*
Linimentum saponis, *Lond.*
ammonizæ, *Lond.*
Aqua kali puri, *Lond.*
kali, *Lond.*

M.

Mel Ægyptiacum
rosaceum
Mercurius calcinatus
corrosivus sublimatus
ruber
dulcis sublimatus
emeticus flavus
præcipitatus albus
ruber

Oxymel æruginis, *Lond.*
Mel rosæ, *Lond.*
Hydrargyri calcinatus, *Lond.*
muriatus, *Lond.*
nitratus ruber, *Lond.*
Calomelas, *Lond.*
Hydrargyri vitriolatus, *Lond.*
Calx hydrargyri alba, *Lond.*
Mercurius corrosivus ruber, *Edinb.*

N.

Nitrum vitriolatum

Kali vitriolicum, *Lond.*

O.

Oleum animale
petrolei Barbadiensis
terebinthinæ æthereum
Opium colatum
Oxymel scilliticum

Oleum e cornubus rectificatum, *Edinb.*
petrolei, *Lond.*
terebinthinæ rectificatum, *Lond.*
Opium purificatum, *Lond.*
Oxymel scillæ, *Lond.*

P.

Philonium Londingense
Pilulæ aromaticæ
gummosæ
VOL. V.

Confectio opiata, *Lond.*
Pulvis aloeticus cum guaiaco, *Lond.*
Pilulæ e gummi, *Lond.*

Y Y

NEW PHARMACEUTICAL NOMENCLATURE.

Old Names.

Pilulæ coccinæ
 mercuriales
 pacificæ
 rufi
 Pulvis e bolo compositus
 ——— cum opio
 cephalicus
 e cerussa compositus
 Doveri
 sternutatorius

R.

Rob baccarum sambuci

S.

Saccharum saturni ———
 Sal abfinthii
 ammoniacus volatilis
 catharticus Glauberi ———
 diureticus
 martis
 rupellensis
 tartari
 vitrioli
 volatilis salis ammoniaci
 Species aromaticæ
 Spiritus cornu cervi
 ——— lavendulæ compositus
 ——— simplex
 nitri dulcis ———
 ——— Glauberi
 salis ammoniaci
 ——— cum calce vivo
 ——— dulcis
 ——— marini Glauberi
 ——— vinosus camphoratus
 ——— vitrioli dulcis ———
 ——— tenuis ———
 volatilis aromaticus
 ——— sætidus

Succi scorbutici
 Sulphur auratum antimonii
 Syrupus ex althæa
 e corticibus aurantiorum
 balsamicus
 e meconio
 rosarum solutivus

New Names.

Pilulæ ex colocynthide cum aloë, *Edinb.*
 ex hydrargyro, *Lond. Edinb.*
 Pilulæ thebaicæ, *Edinb.*
 ex aloë cum myrrha, *Lond.*
 Pulvis e creta compositus, *Lond.*
 ——— cum opio, *Lond.*
 sternutatorius, *Edinb.*
 e cerussa, *Lond.*
 ipecacuanhæ comp. *Lond.*
 asari compositus, *Lond.*

Succus bacce sambuci spiritatus, *Lond. Edinb.*

{ Cerussa acetata, *Lond.*
 { Sal plumbi, *Edinb.*
 Kali, *Lond.*
 Alkali volatile ex sale ammoniaco, *Edinb.*
 { Natron vitriolatum, *Lond.*
 { Soda vitriolata, *Edinb.*
 Kali acetatum, *Lond.*
 Ferrum vitriolatum, *Lond.*
 Soda tartarifata, *Edinb.*
 Kali, *Lond.*
 Zincum vitriolatum, *Lond.*
 Ammonia, *Lond.*
 Pulvis aromaticus, *Lond.*
 Liqueur volatilis cornu cervi, *Lond.*
 Tinctura lavendulæ, *Lond.*
 Spiritus lavendulæ, *Lond.*
 { Spiritus ætheris nitrosi, *Lond.*
 { Acidum nitri vinosum, *Edinb.*
 Acidum nitrosum, *Lond. Edinb.*
 Aqua ammoniæ, *Lond.*
 Alkali volatile causticum, *Edinb.*
 Spiritus ammoniæ, *Lond.*
 Acidum muriaticum, *Lond.*
 Spiritus camphoratus, *Lond.*
 { Spiritus ætheris vitriolici, *Lond.*
 { Acidum vitriolicum vinosum, *Edinb.*
 { Acidum vitriolicum dilutum, *Lond.*
 { Acidum vitriolicum tenue, *Edinb.*
 Spiritus ammoniæ compositus
 ——— sætidus, *Lond.*
 Succus cochleariæ compositus, *Lond.*
 Sulphur antimonii præcipitatum, *Edinb.*
 Syrupus althææ, *Lond.*
 corticis aurantii, *Lond.*
 toluatanus, *Lond.*
 papaveris albi, *Lond.*
 rosæ, *Lond.*

NEW PHARMACEUTICAL NOMENCLATURE

Old Names.

New Names.

T.

Tabellæ cardialgie
Tartarum emeticum —
 regeneratum
 solubile —
 vitriolatum —
Tinctura amara
 antiphthifica
 aromatica
 fortida
 guaiaci volatilis
 ipæcacuanhæ
 japonica
 martis in spiritu salis
 melampodii
 rhabarbari spirituosâ
 ————vinosa
 rosarum —
 sacra —
 stomachica
Trochisci Bechici albi
 ————nigri
Turpethum minerale

Trochisci e creta, *Lond.*
Antimonium tartarifatum, *Lond.*
Tartarus antimonialis, *Edinb.*
Alkali fixum vegetabile acetatum, *Edinb.*
Kali tartarifatum, *Lond.*
Alkali fixum vegetabile tartarifatum, *Edinb.*
Kali vitriolatum, *Lond.*
Alkali fixum vegetabile vitriolatum, *Edinb.*
Tinctura gentiani composita, *Lond.*
 saturaina, *Edinb.*
 cinnamomi composita, *Lond.*
 asa fortidæ, *Lond.*
 guaiaci, *Lond.*
Vinum ipæcacuanhæ, *Edinb.*
Tinctura catechu, *Lond.*
 ferri muriati, *Lond.*
 hellebori nigri, *Lond.*
 rhabarbari, *Lond.*
Vinum rhabarbari, *Lond.*
Infusum rosæ, *Lond.*
 rosarum, *Edinb.*
Vinum aloës, *Lond.*
Vinum aloeticum, *Edinb.*
Tinctura cardamomi composita, *Lond.*
Trochisci amyli, *Lond.*
 glycyrrhizæ, *Lond.*
Mercurius flavus, *Edinb.*

V.

Vinum antimoniale
 chalybeatum

Vinum antimonii, *Lond.*
 ferri, *Lond.*

U.

Unguentum album
 album
 antipforicum
 busilicium flavum
 cæruleum
 ————fortius
 ————mitius
 e mercurio præcip.
 saturninum
 simplex
 ad vesicatoria

Ung. ceræ, *Lond.*
 e cerussa, *Edinb.*
 e sulphure, *Lond.*
 resinæ flavæ, *Lond.*
 ex hydrargyro, *Edinb.*
 hydrargyri, *Lond.*
 ————mitius, *Lond.*
 calcis hydrargyri albæ, *Lond.*
cerussæ acetatæ, *Lond.*
adipis suillæ, *Lond.*
cantharidis, *Lond.*

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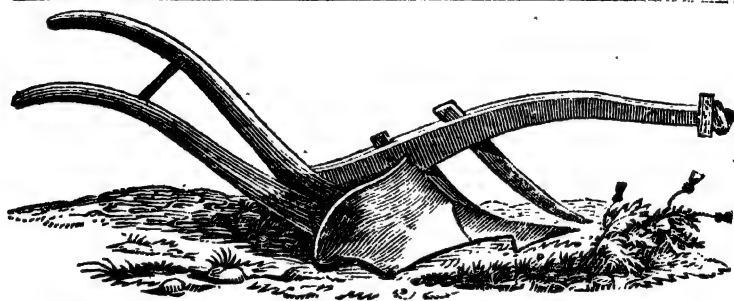
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